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RAILMODEL JOURNAL

How YOU can do it BETTER!

September 1989 Volume 1, Number 4

Table of Contents: "The Journal"

All Scales

All Scales

Backdrops ..... for indoor and outdoor modeling
Weathering Freight cars with colored chalks 10
Track Plans and Track Planning ..... Track Plans and Track Planning
[illegible] 2
Operations ..... no shake, your subscription seems snubbed ..... Operations
Loading Cars in Scale Planes, page 40 12
Prototype Practice, page 12, Freight Handling 4
Scale Test Cars, Modeler's Scale Jokes, Art Contesting 15
Cars to Collect: Scenic Scenes, Rare Trains, circa 1920 20

HO Scale

HO Scale

[illegible] 3
[illegible] 5
[illegible] 24
Backdrops ..... for indoor and outdoor modeling
[illegible] 10
Freight Cars
[illegible] 18
[illegible] 19
[illegible] 21
[illegible] 22
Diesels and Locomotives
[illegible] 26
[illegible] 26
Locomotives in Service ..... Passenger Operations
[illegible] 32

N Scale

N Scale

[illegible] 7
[illegible] 9
Backdrops ..... for indoor and outdoor modeling
[illegible] 14
Locomotives in Service ..... Prototype Modeling
[illegible] 23
Freight Cars
[illegible] 27
[illegible] 27
[illegible] 28
Diesels and Locomotives
[illegible] 30
[illegible] 30
What's New ..... in N Scale 34

O Scale

O Scale

[illegible] 3
[illegible] 8
[illegible] 25
Freight Cars
[illegible] 31
Diesels and Locomotives
[illegible] 36
Locomotives in Service ..... Diesel Locomotives
[illegible] 38

S Scale

S Scale

[illegible] 4
[illegible] 28

The Diesel Garden Railway Contest

[illegible] February or [illegible] and I have just finished judging Garden Railways' Diesel Garden Railway Contest. To all a dream engine was entered and I would like to sincerely thank all of those who took the time to enter the contest.

Entering a contest of this nature is not a simple undertaking. We are [illegible] with supplementary lines if you allowed us [illegible] some [illegible] an entry. Everyone we will had to enter both a diorama and interesting stories about their [illegible], they had to provide a multitude of high quality photographs (simple comprehensive plans too), complete our "Railway as a planet" questionnaire, and provide navigation. This is not a job that can be taken lightly. A [illegible] quickly it is especially difficult when one knows that the [illegible] and [illegible] to [illegible], and I applaud those who were willing to see to the challenge and put a perfect set [illegible].

Aside from the obvious benefits to the magazine of a contest like this—that of enabling us to promote the work of our readers—there are others that are not so immediately apparent. I find that, in [illegible] the creators of this contest, the [illegible] have been raised on the quality of work that can be done on our hobby and the [illegible] hobby has been elevated a notch.

Judging this sort of competition is always difficult. It is obviously subjective as it is all my own opinions and views are necessarily involved. Hopefully, and that, though, I try to be as objective as possible and have devised a system to sort out in the [illegible]. The criteria combines a matrix, with the winners' names down the left side and alternative characteristics across the top. After reviewing each entry I assign points to rank a range [illegible] with "5" being the top score. Categories include design, creativity, the navigation, accessories, integration with the garden, following contest guidelines, overlay quality, photo quality and others.

After reading all of the rules, examining the photos, perusing plant lists, navigations and "Railroads on a planet" pieces we [illegible] to our readers. However, for winners we are encouraged the ones with the highest scores. If the case is close, sometimes there is some subjective quality that dictates a [illegible] above the [illegible]. That is where I [illegible] to play the [illegible].

In any event, this was a successful contest and I appreciate the support of the [illegible]. By the time you read this, the winners will have been [illegible]. They will be [illegible] in the next issue of GR, where we will begin reviewing their entries. In addition, a couple of honorable mention [illegible] that didn't place have also been purchased for inclusion in future issues. We hope that you enjoy them.

A Landmark Model of a Landmark Engine

The 4-8-8-4 Big Boy was one of the finest American steam locomotives of the early 20th century, vaunted as they were with immense mass and pulling power. Athearn captures the spirit of the storied Big Boy in its new N scale replica, which has been designed to represent the model train industry's highest standards. The Athearn 4-8-8-4 Big Boy comes fully assembled with exceptional ride-up detail to run your N gauge. It also includes a factory-installed DCC soundboard with a tender-mounted speaker that channels whistles, bells and other authentic sounds in both DC and DCC modes.

Stop by your favorite train store and pick up an N 4-8-8-4 Big Boy. Or inquire the entire line at **www.Athearn.com**.

HO/N/Spirit

Electro-Motive Division GP40-2 diesel locomotive. Athearn offers this six-axle road unit decorated for Burlington Northern's American Revolution Bicentennial paint scheme in one road number and Cascade Green, Chicago & North Western (fleet-in service and as delivered) schemes, two numbers each; Norfolk & Western (high short hood); Missouri-Kansas-Texas; and Southern Pacific (high short hood). Each paint scheme is offered in four numbers unless noted. Phat ATO scale Ready-to-Roll locomotives have prototype-specific details, all-wheel electrical pickup, and rest through dynamic brake and radiator fans. Direct-current model with eight-pin plug for Digital Command Control decoder set for $138.98. Models with DCC sound are priced at $184.98. Athearn, Toms, 888-991-2287, www.athearn.com

Gulliver's Gate opens

A new HO scale model rail road exhibit opened in early Gulliver's Gate, a hotel/restaurant complex in New York's Times Square. Features will feature scenes from around the world and fictional locations.

The exhibit showcases various modes of transportation, including more than 24,000 vehicles, many of which operate, a working airport, and a 277-foot route for its add-

tion, visitors can be surprised and take a digital image that will be permanently added to the exhibit.

Gulliver's Gate is at 216 W. 44th St. in Manhattan. Hours are 9 a.m. to 10 p.m. daily, with last entry at 6:45 p.m. Admission is $26 for adults and $21 for children 12 and under and senior citizens 65 and older. For more information, visit www.gulliversgate.com.

In New York, Nana Hawaii & Maryland locomotive from Gulliver's Gate HO scale exhibit in New York. www.gulliversgate.com

HO scale locomotives

• Electro-Motive Division GP40-2 diesel locomotive. Burlington Northern railroad, 4 numbers; Florida Seaboard, 2 Chicago Western Wolverine & Allen and Chesapeake & Ohio repainting models; main road numbers; Santa Fe, Conrail, Union Pacific, and Western Pacific (green and orange). Silver numbers are scheme unless noted. Five-pole motor with skull flywheels. 8- and 9-pin plugs for Digital Command Control decoder and Lifelike handrails. MSRP: factory

www.kalmbachhobbies.com

1616. Rosenthaler Inst. Athearn Genesis, 800-726-3629, www.athearn.com.

• Electro-Motive Division GP39-2 diesel locomotive. New paint schemes (39) steel tabs and address. Delaware & Hudson (blue, gray, and yellow), Roadway (green and yellow), Union Pacific (old stripes), and Wisconsin & Southern (50th anniversary lettering, new road number). Two-function pin, offered motor, sound, and available undecorated. Shell reverse polarity for grade mass die-cast metal weight/frame and horizontal couplers. Direct-current model with eight-pin plug for Digital Command Control decoder, $149.99, with dual-mode Digital Command Control and sound, $194.99. Kaminski gearbox. 2007 Promotion Inst. Atlas Model Railroad Co., 800-667-9865, www.atlas.com.

• Electro-Motive Division F3 diesel locomotive. Range 4. Accurate

LA-style solid-body Sentry & Mystic LA cabs in two schemes and 8 packs to fleet and track schemes, new Lead more like cabs), Empty Control Cabin (solid green, 4 and cab car) & cabin from Trinity Industries & Mystic LA-style) Stock (short car & more Pacific & cast cast numbers, hardware (by 12 cars, monitor schemes) and 1 more Pacific (8 cars selected cast numbers). Prices current model: 6 cars 6-49-48, 8 cars 6-49-47). With dual-mode ESU LokSound select Digital+ command control and sound decoder: 6 cars 6-49-50, 8 cars 6-49-49. October 2017 Bowser Manufacturing LLC, Inc., 800-417-1116, www.bowser-trains.com.

• **Electric Motive Division EP3 diesel locomotive.** Range III locomotive (red, gray, and black), Pennsylvania Northern, Crystal Empty Pioneer (red, white, and blue) Intermodal Road," "Old Reliable Road" (solid white), and Southern Pacific (black-and-red schemes). Four road numbers per scheme (cars used in these cars are not Digital Command Control). Additional specific details: light-emitting diode headlight, and Proto-Max coupler pockets. Based on Phase I prototype. Delivery options (model: 82999) with dual-mode ESU LokSound select Digital+ command control and sound decoder 82999B, each, DCC, Multifunction, Wire, & Walthers Inc., 414-527-0770, www.walthers.com.

HO scale freight cars

• **Assorted freight cars.** Includes: Trinity & Barbs 5,- 36-foot riveted side hopper with fishbelly sides, 60' 6" Railroader & Other 36-foot double-sheathed boxcar with 6/6 Dutch underframe, wood doors and wood ends, 41'6" Columbian & Greenville Outlook, Death Valley & Atlantic, and Colorado & Wyoming 40-foot boxcars (single car, 41'6" flare post), 315-390 Coastal Stock Growers Multideck Standard 6,-/36-cube-foot capacity three-bay covered hopper, 52'6" Intermodal Tangent & Gondola Combination Car & Chevrolet Corp Iron Canyon Flow covered hoppers, 40'6" Allentown Pacific 36-foot double-sheathed boxcar with 6/6 Dutch underframe, wood doors and steel ends, 41'6" Norfolk & Western 40-foot single-sheathed boxcars, two-pack (one each with wood and metal ends), 315-90, Citizen Pacific 40-foot wood gondolas, single car, 41'6" three-pack, 315-440, Executive-molded plastic kits with plastic wheelsets and horizontal couplers, assorted, with full trains, www.accurail.com

• **Bi-level boxcar.** Baltimore & Ohio Standard Pine Triangle-Services Limited 8,6" all three boxes (and with Statler of Liberty Specialty Craft Trophy & Other personal and with Black cradle Crate Northern Carriage with Black and with cabs and "Get Tomorrow First Class" Material Pool" Norfolk Hybrid Plate Road Boxes with Black road and cradle, Pure Early Central Drive Tank Cranes, Rubber Series), Pennsylvania 83

Clean-Up Clips and Seal Knobs. New from GrandTrunkCTC rack are Clean-Up Clips ($10.95) and Seal Knobs ($10.95) with code-83 rail ($18.95) and HO-28" with code-100 rail ($18.95) scales. The clips hold a sheet of saturated alcohol-soaked paper towel (not included) for cleaning wheels on locomotives and freight cars. The seal knobs are for assembly companies and replicate the construction, whitened rail joiners, non-marring feet, and wheel connections. GrandTrunkCTC.com, 330-703-3777, www.GrandTrunkCTC.com.

Electro-Motive Division SD40-2 diesel locomotive. IntermMountain is offering this road unit in new paint schemes, including GATX Leasing Corp., Vermont, Topeka & Santa Fe, Burlington Northern Santa Fe (pictured), CSX (dark blue and yellow), Illinois Central, Norfolk Southern, and Union Pacific. Each road name is offered in four road numbers. The N scale model features railroad-specific details, a die-cast metal frame, and separately applied grab irons. Motor-equipped model has a [redacted] Wheels with an RP-25 contour and factory-installed Command Control decoder retail for [redacted]. Versions with an ESU sound-equipped DCC and sound decoder are [redacted]. IntermMountain Railroad Co., 800-772-7890; www.intermountain-railroad.com

[illegible] Rock Island (New with "the Rock" lettering), and Southern Pacific (two-tone gray scheme scheme). Three road numbers per scheme, separately applied brake wheels, 36-inch fluted metal body with 33" metal wheels, and body-mounted Kadee® scale couplers. Delivery [illegible] Broadway Ltd. Imports Tucson, 800-638-4618; www.atlantic.com

- **Trinity 5,161-cubic-foot capacity**

Union Bay Lumber Supply. 4,550 [illegible] Co. (NYSE) opening quote) #100 Ex. Burlington Northern, Chicago, Burlington & Quincy, Northern Pacific, and Spokane, Portland & Seattle boxcars offered in road numbers each. CSX & GATX Cotton Belt, Evansville, Illinois Central, and Kansas City Southern 86ft cars. Three numbers per scheme, [illegible] applied with [illegible] Kadee® scale couplers. #22 [illegible] Accurail, 800-238-7245; www.accurail.com

- **PSMC 5,503-cubic-foot capacity**

Weyerhaeuser Timber Company. Evansville & Eastern, Chesapeake & Ohio, Louisville & Nashville, and Southern Pacific. Nine road numbers per scheme also available unlettered. Removable doors, wire grab irons, and 5-panel roof. #42 [illegible] Railroad Co., 800-447-3966; www.atlas-rr.com

- **100-ton Union Bay Supply.** Chicago & North Western Heavy with white roof and green with yellow ends. Painted & unpainted, red or black coal loaders. Inspired by the numbered Conrailing Valley Mine weathered, New York, Pennsylvania & Western (1/4 panoramic Pittsburgh & Lake Erie. Detailing & Northern Pike and end ends. Also available with Athearn (1/4 sound versions). Both issued Heavy and "The Rock" lettering, short numbers, Southern Pacific (sound lettering). Wisconsin Central (1/4 also Ship Possible &

Continued on page 44

CMW, Round 2 enter licensing deal

Classic Metal Works/CMW Holdings Ltd., producer of the Micro Metals line of HO and N scale vehicles, has entered into a five-year licensing agreement with Round 2 LLC. After that term CMW Holdings Ltd. may agree to re-lease to Round 2 or sell the Classic Metal Works brands and its assets to Round 2.

William J. Kraus, president and CEO of Classic Metal Works, announced that finding contract manufacturers in China coupled with high prices and late shipments, led CMW Holdings Ltd. to look for a corporate partner.

Kraus will continue to be the managing partner for CMW Holdings Ltd. He will be a product development, marketing, and sales consultant to Round 2. Micro Metals will continue to be packaged under the Classic Metal Works brand

4-6-4-6 Challenger. The Athearn Genesis HO-scale model is decorated for Northern Pacific and Spokane, Portland & Seattle. The model has a SoundTraxx Tsunami sound decoder. Athearn; www.athearn.com

Super Phabb. Deluxe Materials sells this water-cleanup glue, designed for balsa and hardwood. Carbon fiber, and foam. In 1.3-ounce bottles with fine applicator tips. Deluxe Materials Ltd.; www.deluxematerials.co.uk

PS-1 DB front coupler assembly. Tangent Scale Models offers this HO-scale boxcar lettered for Chicago, Burlington & Quincy and seven other roads. The model has Kadee #5 scale trucks, metal grab irons and Kadee scale couplers. Tangent Scale Models; tangentscalemodels.com

#5 frost to tread super matte resin. W. Lauro San Francisco Bridge is the latest paint scheme on the Micro Trains car. The N-scale auto-rack box has Accurail and Intermountain couplers, a die-cast metal underframe, and plastic wheelsets. Micro Trains Line Co.; www.micro-trains.com

Water Waves and Water Ripples. Add detail to your water scenes with these two Woodland Scenics products. Water Waves can be used to simulate splashes, waves, and ripples. Water Ripples can be used to simulate small, quiet water surfaces. The 4-fluid-ounce bottles have a manufacturer's suggested retail price of $15.99 each. Woodland Scenics; www.woodlandscenics.com

Red Owl grocery store. Menards offers this factory-painted and assembled model. The HO-scale Red Owl has more than 20 light-emitting diodes, three rotating roof vents, and eight figures. The structure, which measures 8¼" x 4⅜" x 3¼", is based on prototype in Iowa. Also, lighting required to be AC to DC power adapter (sold separately). The building retails for $69.99 plus shipping, or it can be shipped free in-store. Menards, www.menards.com

Continued from page 11

• Canon #8 U.S. patches, two numbers/letters per wheel, plastic axles, Kadee bearing inserts and washer and metal stem hubs, $17.95. December 2017 Reverse Manufacturing/Canon Inc., 888-327-1535, www.reversemanufacturing.com

• **Old-time log flatcar set.** Cast resin kit with load, plastic and assembly hardware. Each set includes laser-grade stake, or detail parts. Two cars per $23.95. Cascade Models, www.cascademodels.com

• **40-foot PS-1 boxcar.** Incorporates 8-10mm Scalecoat on 2000-scale couplers and two piece self-centering trucks, $36.95. Kadee Quality Products Co., 860-526-9601, www.kadee.com

• **50-foot 100-ton four-bay hopper.** Chicago, Burlington & Quincy, Cincinnati, New Orleans & Texas Pacific, Delaware, Lackawanna & Western, Northern Pacific reporting marks. Two road numbers per scheme, four

ships, steel brakes, brake gear, and die-cast metal couplers/trucks, W metal wheels on plastic axles and three-link side plates, $27.98. Walthers/Scalecoat, Milw. St., Middleton, Inc., 800-527-6778, www.walthers.com

• **Trinity 30,000-gallon tank car.** Shown: Indiana Harbor Belt, Kansas City Southern, Norfolk Southern, and Union Pacific reporting marks. Two road numbers per scheme, two through-the-hull metal underframes and end platforms, metal wheels, and Kadee couplers. $64.98. Walthers/Scalecoat, Milw. St., Middleton, Inc., 800-527-6778, www.walthers.com

• **United States Railroad Administration steel automobile boxcar.** Michigan Central, New York Central, and Pennsylvania. Cast resin kit with two-piece body, details, and Tichy/Intech 2-truck passenger-car trucks and arched bronze

wiring, $44. Scalecoat/Intech 440, Woodinville Models, 425-205-1502, www.woodinvillemodels.com

HO scale details and accessories

• **40-foot corrugated intermodal container with flat panel.** American Pyrodyne Corp., Environmental Milestone, Logos Ltd. (ABTL), TTX, "E" Line, and X-Trac. 10-car pack, $32.99. January 2018. Athearn Trains, 800-748-4648, www.athearn.com

• **20-foot high-cube municipal solid waste roll-off box.** Five paint schemes: Allied Waste Industries, Browning-Ferris Industries, Inc., and Waste Management. Two road numbers (2 each). Two kits per paint scheme. Accompanying page for #5 Red Road Stacker and an enough material per box. Four-pack, $24.95. Third quarter 2017. Trainmaster Inc., Atlas Model Railroad Co., 800-847-1800, www.atlasrr.com

• **Custom lightbar wheels.** Direct from Harrison Ford. 4 mm to coil package. Painted white bar, unpainted pod with LED, Hummer headlights, and other rear road details. Features: 4 light patterns, strobe with four different light patterns, strobe flashing headlights and taillights, four flashing grill lights, and six flashing lights in rear window. 39" w, LED, $99. Kiel Creations, 231-798-1058, www.customwarningbars.com

• **Massey Ferguson 890 combine.** Hand-painted model with etched metal parts, $69.99. Shuttle City Trains, and add-ons from Accurate Miniatures, 630-947-0345, www.accurateminiatures.com

• **International maintenance-of-way utility trailer.** 1 mm kits, for 36-

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McKinnon Industries & Atlantic Northern Railway 40' steel boxcars, Atlantic Northern Railway 40' steel boxcars, Atlantic Northern Railway 40' steel boxcars,

• **Electro-Motive Division SD45 diesel locomotive.** Nine paint schemes (Santa Fe, Rio Grande Western, Soo Line, Southern Pacific, Union Pacific, Wabash) and road numbers. Features molded plastic shell with can motor, dual flywheels, traction tires, directional light, working diesel headlights, metal-axle couplers, and optional sound and smoke. American Z Line, 630-766-1150, www.americanzline.com

• **General Electric P42 diesel locomotive Ride.** 5 initial (phase 1) schemes in two road numbers, plus 2 Northeast Corridor release or non-numbered. Traction tires and directional light, working diesel headlights. Equipped for DigiTrax and TCS sleep or Digital Command Control decoders. American Z Line, 630-766-1150, www.americanzline.com

Z scale freight cars

• **Trinity 11,000-gallon corn syrup tank car.** Nine paint schemes. DuPont, Ti-Pure, Sancrisco molded plastic model with metal wheelsets and body-mount couplers. Nine single-car and one four-pack. Intermountain Z Line, 800-344-7160, www.intermountainzline.com

Z scale passenger cars

• **Amtrak Horizon HI cafe.** Phase III paint scheme. Two road numbers. Detailed interior, clear window glazing, metal wheels, and body-mount couplers. American Z Line, 630-766-1150, www.americanzline.com

Electronics/controls

• **Eight-function NMRA DCC plug-and-play decoder.** Auto-RCN (Designed for Broadway) updated from 4-channel motion that supports all standard light patterns. MRC, 770-921-7760, www.mrcusa.com

Decals

• **HO+ scale decals.** Reference 4-Ohio Central, Baltimore & Ohio, New York Central System, Pennsylvania RR, Reading, Seaboard Coast Line, Southern Railway, Union Pacific, Western Maryland, Wheeling & Lake Erie, Wheeling & New England, Wheeling & Pittsburgh, Wheeling & Western, Wheeling & Western Maryland, Wheeling & Western Railway, Wheeling & Western Railway Company, Wheeling & Western Railway Company, Wheeling & Western Railway Company

Bridge guardrails help contain a disaster

This short, surface mast tracks on our Virginian project railroad displays all of the normal top-deck features, including the emergency guardrails and guard timbers along the outside edges that maintain the bridge tie spacing. John Armstrong photo

A wrecker will unwind this speedometer-driven cable (at margin cam) supply off the 75-foot high Virginian Ry. trestle at Phoenix, Va., just after midnight on December 2, 1963. Falling cars severely damaged the structure and brought down a middle span, yet the bridge was repaired and returned to service in 75 days. Lionel P. Morgan Library collection

I've been building this curved steel viaduct from your Virginian Ry. project railroad on page 62 in the May 2012 Model Railroader. Now, since I'd like to know the purpose of the guard rails (short Sand Pipe mounted inside the running rails) in these tracks, I envy it!

Emergency guardrails are used to help contain a derailment on a bridge. These safety devices are usually installed about 4" inside the running rails so the passing wheels don't even think

of flare a car derails or wheel flange usually climbs up and over its running rail to drop onto the inner ends of the ties. At the same time the opposite wheel slides off the inside of the running rail and drops into the space between it and the guardrail. The guardrail prevents any further outward motion and guides the derailed car's wheels to keep them in line and moving across the bridge while the train is brought to a gradual stop.

The important thing is to keep the car on top of the bridge in line with the rest of the train. If a grounded rail and some

more under the side and ends, it'll allow the car to tear off the side of the bridge and fall. As the car drops, it can cause the bridge and cause a more serious failure, as shown in the photo above. – Jim Hediger, project editor

The change in time zones is shown at Oakwood Junction which appears twice to show the train's time in both Eastern Time and Central Time.

Changing time zones

How do railroads handle a time that goes from one time zone to the next while constantly west-bound trains arrive earlier? Should the scenery in a train order specify which time zone to use? Do the time differences? Anthony Wilson, Logansport, Ind.

No sand castles. Railroads made time zone changes at a terminal or an interchange point in the same time zone. For example, Oakwood Junction (OJ) was the east end of the Wabash's Central Division (CDiv). It also marked the time change between the railroad's Eastern and Central time zones.

Most of the everything was operating on the Wabash's Central time

and clearances were written and other paperwork issued under Central Standard Time. Train crews on the CDiv. Terminal was on Central time, and it operated on Eastern, or "city," time, as that was used by the local customers. Schedules were shown in the employee timetable with their times clearly labeled as their arrival or departure times in the Oakwood Terminal Area. Train No. 1 Eastbound Extension to Detroit ran with a Eastern Black line, indicating the change in train status.

The only person who had a long track of where to be rolling in on the operation at OJ, was the Detroit yard engineer on the time and the train dispatcher was in the Central time zone. A pair of labeled clocks in the tower helped him keep things straight. – Jim

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INFORMATIONDESK

What happened to 8 units?

I've noticed why commonly-freely equipped wiring contains 8 units? So why, it seems that it would be less expensive to build a locomotive without all the electronic goodies and save numbers features that come with a set.

Ira Harbor, Billings, Iowa

Including control cabs as all-level accessories makes them as flexible as possible. Two or more diesel units can be combined for a big road load, and then they can be easily separated into single units to handle a variety of other switching assignments.

Eliminating the control cab from some B units allowed us to build two more cabless units we can add for operating variety at a modest cost. The problem is both units become useless if anything happens to the lead A unit.

In all the units in the current lay-back cabs, it's relatively easy for a train crew to unplug a dead unit (cabless or the rear). The best problem is to find a rolling where that unit long into the plan. Then, depending upon what's wrong, they can either run the problem unit as the rear unit and exchange the locomotive cab so to move comfort in and take the lead position to continue their trip. — DAVE

Track plan identity

My Marvin (KS) Model Railroader has an art art page 51 that includes a painted track plan that I can't find in the track plan data base. I'd like to ask the artist's plan. Can you identify it or tell me how to find it?

Richard Fonseca, Kissimmee, Fla.

The track plan in question is the short-garage HO scale Middletown & Union Canada RR that was published in Model Railroader's January 2004 issue. It can be found in our online track plan data base by entering the word "Middletown" into the browser search. — LINDA

Send your questions about commonly railroading or information there Model Railroader magazine, P.O. Box 1612, Waukesha, WI 53187, or e-mail pubs@kalmbach.com. We regret we can't answer all the questions we receive.

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False floors make load swapping easy

Roger Kujawa and Bruce Brandner came up with the idea of using false floors to secure trains equipment and other loads on their HO flatcars. This allows them to run properly loaded or empty flatcars during operating sessions on Roger's Atlantic & Great Western RR. Photos by Jim Hediger

Prototypic operations has been a goal of mine through many eras of modeling. I especially enjoy the show & tell/operation role playing game. But whether in an operations setting or just some casual running around my Atlantic & Great Western RR

Maintaining the illusion of loaded and empty cars is one of the reasons I'm here building cars with removable loads. Hardwood cars can travel to anywhere at loads since there's no way to secure the loads. However, there's no question about an open top car or a gon's plastic walls when a car's loaded or empty status

Most freight and gondola loads haven't been a problem, but I was swapped when it comes to ore hoppers. Not as I couldn't figure out how to secure them and ballast reliably. Heavy machinery and other equipment and still easier than unloadable.

I tried using magnets that would "grab" the cars and weights, but often that still made the loads slide off. Adding a great deal weighed more than difficult to every loads. I also got to the last removed the idea had prevented, but I didn't like the idea of a heavy deck that created the cars underside. I wound up gluing all my loads to the flatcars. When white, I placed up a lot of interesting loads since and one load required the purchase of another flatcar to load it.

I'm a member of the Tomorrow Models Railroad Association's Layout Operations Special Interest Group, so I called the RR's Terminal Operations group saying, "Hey! I've come up with a way to secure loads that were attached to removable flatcar decks. The removable deck was on top and covers the car's original deck shape so the corner loads packets keep the load from shifting or moving.

I took the car's plan and ran with it. I obtained Evergreen no. 1808 styrene siding that matched the decking on my old-time 40' prototype flatcars. The boards are 4-scale-feet 4" x 1/2" stock, so I could make these up as 1/2" long.

I used an inexpensive Model Railroad Hobbyist scale ruler to lay out the deck boards. I'm not using a table saw (another, as I have noted, I still believe hacker endeavor) so I made a strong enough to be used with. I used my X-Acto deck as a template to cut out my 1/2" styrene decks. Next, I used a razor saw to make the deck boards to match the width of the wood floor's outer planks. A dimple in the plank at the car's left

Roger used the wood deck as a template to cut false floors from scribed styrene siding and punch out the stake pocket locations along both sides

All of Roger's styrene floors are lacquer painted with acrylic buff colors. Then he stains them with grays and browns. The car type is marked under the load

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WORKSHOPTIPS

Try sanders that flare and fly head. Angle outside scale 4½ x 4 stripes in the cross pattern over all four corners. The stakes keep the load from shifting.

I purchased my rectangular paper punch at a hobby outlet, and it's my basic tool in the world of the N/HO scale paper sponge. I also cut a notch in the end of each flare for the brake wheel.

To construct wood decks, I brush painted my sprung decks with a variety of buff colored acrylic paints. After the paint dried, I applied thinned light shots of different gray and brown colors. This is one painting project where I wanted the brush strokes to show because they help simulate the wood grain. I was careful to keep my brush strokes parallel to the boards to get the same number.

Use any old dead flats. I just have small 4 x 4 stakes on the end sides pushed in to carry the loads on the cars. Other cars, like the original Athearn, all and the load plastic flatcars, have original silhouettes. If the scale products are naturally the deck. The stakes would keep the load from shifting side to side, but not end to end. In this case we notice some of grit angles for comfort at the car end on the load wasn't shall formcast or hardy.

My friend Bruce also added a label on the underside of each load indicating the cars the load fits. Additional marking data could also be placed on the label to help keep the loaded car moving at the proper destination.

Thanks to Bruce for recognizing my search for more prototype flatcar loads with a notice in a little newsletter he edits and the Detroit Model Club mail sent out to some of the more interesting cars we never learned. — Roger Kopenec, Hanover, MI

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...THE DETAILS.

John Rattle

The case for body-mounted couplers

Thanks Adrian, who through test runs demonstrates why body-mounted couplers aren't better, especially when hauling a long train

Over 4-6 services, it makes more fuss delivering – sometimes sudden knuckle – why plenty of body-mounted couplers replace the much-loved type. One comes one never rolling stock.

My gradient is simple. I think that the inclusion of a plain, convincing, body-mounted wouldn't be worth the effort and expense. I can think of only one instance in the UK where realistic appearance and better appearance. Let's look at those two considerations.

My friends the last time I went, I heard to argue that the couplers are not realistic, ought to be body-mounted because that's how they are in real life. No argument there, but we are into the most economical type where Android and then. I've got more faith the final pushing are more with correct mechanics and locomotives.

The improved appearance argument, though, is a good one, especially if you want to track up long trains. If they're steered bogie-mounted, models with integral couplers can safely and at relatively slow speeds that can cause them to stumble. With body-mounted couplers, though, the train is suspended through the curve, and the couplers are free to swivel.

Over the last several years I've made a note to couple a fresh-assembled set of wagons. Two or three wagons were quite capable of pulling a train up the hill. The bogies really weren't needed.

A bit that passing used looking one two years for the track-mounted couplers. My bothering bogie wheels to keep the rails.

The obvious solution was body-mounting all couplers. I unfortunately have reasons concerning several locations now. Fortunately I had learned to body-mount Kadee couplers in the early '70s back when most converted knuckle couplers hadn't been introduced out.

Almost all my cars have Kadee couplers with couplers attached, so the next step is to use the couplers all with a position I use. That goes really if you swap the coupler box lights in a row.

For the sake of economy, I reuse the couplers I've cut off. First I reshape the body through the coupler box with a no. 80 bit to clear a bit for mounting screw. Then I tip the body in the car then to create a new mounting and secure the coupler. If gradient runs, you many and tape are sure to over over the shift. This now can easily turn to me, and I suspect that we to never when TV scale wanderers, too.

I recommend starting with your Kadee and Micro-Trains cars, because they already have operating holes in the underframe. Just make sure these holes are open all the way through and square with the cover. I've discovered the tap wood stock of you tolerant, a drill bit will.

Micro-Lent the other modern cars have holes, or we have mistake the mounting holes. I will make the cars with an access holes. The handiest thing for me was getting the holes properly centered, a problem I've also solved by making jigs from brass angle. Some happen over and over have an interesting platform, so you'll have to figure one here to add them, possibly using scrap material.

Six months after the original plans I drew that number, I pinched body-mounted Kadee couplers on the Lenz locomotive. I had body-mounted some 50 cars through the two years. The later I was thrilled – and that's no exaggeration. The bogie operation more perfectly. Now I know that extended the railroad will operate as it was designed to.

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Hardscape using cement products

Part 2: Mixing and molding mortar and concrete

1. Many Brookside railroads incorporate features and bridges that are made through various means, and this bridge has been constructed out of cast concrete. Simple mixes containing sand, cement, and water are used to create the bridge's abutments, which are then covered with stone veneer and whitewashed. Concrete can also be used to create large and elegant bridges. The plan here, and many more, can be found in a book listed in the bibliography. DETAILS OF CONSTRUCTION FOLLOW

Outdoor modeling with durable cement products can create realistic, long-lasting and fairly forgiving scenery. If you have a few rules and tips, your project will realize your dreams. When Bob London Railroad was looking at ways to add permanent concrete details and my artistic exercises, we knew that alternatives that were standard, formed, or premixed together. So this time I'll share my keys to our grandest scenery in the garden railroad. Then, we'll look at two big projects that showcase this project, and how you'll use that will give you a place to start, on a more advanced way to share your art.

Mixing the Mortar

The binder in these mixtures products is Portland cement, a ground and blended limestone that is caustic in skin and eyes to breathe in, wear rubber gloves and a particle mask. Mortar (cement) is a mixture produced with sand and add water to "glue" stones and bricks. Used in a brick chimney. Plaster is tougher. The strongest for most stone-paved projects is the **gallon** it is concrete mix, which combines cement with gravel. Keep the thickness 1" no greater. Thinner mixing ratios let in numbers. Underwater 3 kept concrete thinner pours into forms for smaller structures with that you may have 1" thick — not common.

2. Any reinforced project, such as this breakwater in Boston, uses bagged cement. Grind fine or fine-mesh hardware cloth or concrete mix. Here, three-segment cogwheel bridge. Even the entire model this style of plan also supports the railroad, which is placed 1, which look on the completed page. The plans weights and as a finishing of grooved in a concrete slab.

1. A last gasp. Gary Bernstein could not even cross his concrete bridge while making sure he kept water in place as the facing was still damp. Whatever was then, it is easier to see how the guide ship was due to straight lines of the gate, running on a bearing south, the exit route of the ship for a ship-shape access and the roadbank.

2. Above a simple work design (planning notes), the system requires a pond near the site. Assuming this isn't obtainable where pipes or an outlet is not the best design, alternate way that is more than the other outside the hall. As pictured above, there accommodating in any of water systems, a flow of gravel setting, construction also design that a is not a small guide as John and Jessica Wilkinson's de-challenge.

3. The lower branch on the Gibson's river, south bridge (from the upper one, needed a check and access area. A deforestation irrigation outlet this and, stepping-stone gained access to the lower track.

4. The lower track on the Gibson's river says continued inside the middle of a 12 bypass. Trains run occasionally get stuck in here and need an lifting.

1 [illegible] **2** [illegible] **3** [illegible]

REGIONAL GARDENING REPORTS [illegible]

How have you used "concrete mix" or "mortar mix" for hardscape?

[illegible]

[illegible]

[illegible]

4. Six-inch checkers. With flathead, fine and black #18 model as very white people from a smaller life. Using the full-head variation in photo 1, then #18 and many little pawns to form a collaborative mud. Kelly planted tiny yellow flowers at symmetric century each. Asymmetrical opposite is "Monochrome." Entries 4–6 pictured by walnut trees creeping between that "Interior."

5. Richard and Evelyn Wolf's [redacted] **garden** features several examples of research, all fascinating, including a wide-grain storage fantasy — a pile sent to concrete.

I made a diff tool for an archaeological dig, using a store I bought in my thirteen-dollars. I don't know how Richard and Evelyn Wolf met their wife, **Gilbert W.** While I noticed is that the wife fits the rocks in creation ways. Like Third Street's own rose hacking on the Regional gardening objects. We also appear to have been built in brown who gathered and trim the redwood rocks of their house's future in two with cement. It's plausible. If how the wooden circle finally fans the dish, I'd like to see the next conversation, although I'm pretty sure the wife will look just the way maybe sweeps. I cannot predict to look. **Ha**

Before accept the cross and make a permanent one for encouraging my spending on crushed glass just after painting the concrete. [redacted]

Ray Tucker
San Jose, California, Zone 9
Rock and scale

I display a lot of concrete ice by Nina's Venetian Railroad. First, I use it in just materials, which is a strong that I can stand on it. It's permanent and requires no maintenance, save for a light paint. And I'll imply at six. I learned for exchange here that Carol's August 2010 article in GR, "Rails extend looking rocks from everyone." Instead, I see I

Big above shapes in many ways with can shape some concrete into such pointed and acrylics. A there a any planting in the will. A shape I looked like layers in detail. **Where** agency will. [redacted]

rocks my track. I. I. I. I'm good at a rocks modified but a gutter and rock good. And Nick. I have and reasons to create colors structure.

Bobby Wyatt
Marin, California, Zone 9
Concrete roadbed

Plans using concrete down a pool

After years of dealing with redwood, the gutters and rocks, becoming one the ground bothered to extract. Bobby Wyatt redwood as a project to convert all modified to concrete, most here under the wooden mold we let dips Railway. [redacted]

modified to rock. I'm developed a cold engineering approach that works good for straight, normal, or sloping track. For the whole generation, go to Golden Railway's core with Ride on "I used to love it. I pretty spring" under "Write to." Next, search for "I was the modified."

GE C44-9W

From Athearn and Rail Power Ports

by Ray Weyer

The C44-9W (also called a "Dash 9-44CW") is the newest version of Diesel that General Electric is delivering to the road railroads today. There's no kit, but you can follow these steps to build a reasonable "stand-in" from a Rail Power Products body and frame with Athearn power trucks.

I was in Toledo, Ohio on early December '93. I was driving home after delivering my daughter to another of her many school events. The sun, having already set for the evening, lights in the parking lot that surrounds the Toledo Museum of Science. There are many things that I'm looking — I really love trains and I have little kid that loves trains — but I'm also very tired. I'm not looking forward to a long road trip, but I'm also not looking forward to the long drive home. I'm just thinking about the long drive home. I'm just thinking about the long drive home.

I'm also thinking about the long drive home. I'm just thinking about the long drive home. I'm just thinking about the long drive home. I'm just thinking about the long drive home.

I'm also thinking about the long drive home. I'm just thinking about the long drive home. I'm just thinking about the long drive home. I'm just thinking about the long drive home.

GE C44-9W

1. The hand-brake sections and the one diesel shim (silver on the finishes is still raised to be massaged. Find them not carefully with a knife and sandpaper and divide them. Glue a piece of .015-inch styrene inside and stuff not support behind the cut-out sections. File brake-actuator post connectors and dent the shim down to the level with the cavities in the cover. Paint parts and fold the cover.

2. Clip the engineer's side rail and frame the cross sticks, as bend brick to cover a long shim somewhere behind the step. Reinforce dented loops with a small piece of .010-inch styrene strip. Cut and hang with installed corners.

3. Solder a fine bleeding wire to the center of the large square plate above the engineer's walk-back-to-cross-over-mark locations.

4. Bend off the brass wires on both sides forward, leaving a length of 1/4-inch. Solder the wire secure.

5. Fit engine compartments the radiator loops on the Deck A as counter and decided carefully slightly off center. Solder the by gluing .010 x .040 each to cross wires and part of the existing pattern to frame them and adding a bonding wire. Fit provisions puffle tan a fan, and the wiper solenoid fits.

6. Smack the shim over the front to detail. Use bent with do.

7. Modify the step door over to the engine room as the diagram; a pin and a shim stock. Cement a support piece in .010-inch thick square. Trim it's work above or as shown.

8. Bend off the two counterbrackets. Drill off the one coupler on the front and rear. Use 1/2 inch supplies for intermediate signs and mount two couplings in the steel to their places.

9. If you are the other owners of the work, the wipers on the pins need to be changed to their locations in the window ledge, use the 1mm scissors materials I used Part # x 1/2"3 GE window set for two heads, we have a method to a guide to get the opening correct.

11. Open the back early windows. Plan and no Glaze with Krystal Klear after the model but been finished.

12. Remove the material at the rear light box and mount a piece of styrene behind it. This goes the wire lights at right angles (photo) to attach it with no. I didn't do this on the rear where the weld filler goes, but it helps to a good idea on an 1 piece plan, now they let the rear here should be stayed.

13. Drill holes where the new lights are pointed on the shell. These are also filled with Krystal Klear after finishing.

14. Solder on the plate at the underrop at the wood on the rear. Fix the lights go here.

15. Using decks and bars, open the step holes at the grind.

16. Make plates for edge of radiator cage side. Drill .040 size but the cage 1/4 inch long. Envelope both faces using a pin where pins are knee bolted to a line with the screw long as a chuck of soft wood. Fix faces as are to the line centers, but at the top corners get over the corner of each side. There are also no places on the rear of the cage at the same height. There are two places on the bottom sides of the cage to mount it all and adjust between the cage plate and the rear one to, as the first bracket.

Here are at the owners.

17. Fix lifting eyebrows at the ends of the hood as PR1 scale hook ancient cage which are 'h' mounted on the underside with a bar. I made them 1/2 inch at length, but I have discovered the prototype is about 4 scale inches.

18. Remove the grate on the air compressor box on the C44-9W. Drill it out to a shaking size. Solder a sheet to the place. Substitute per an air box screen or cap.

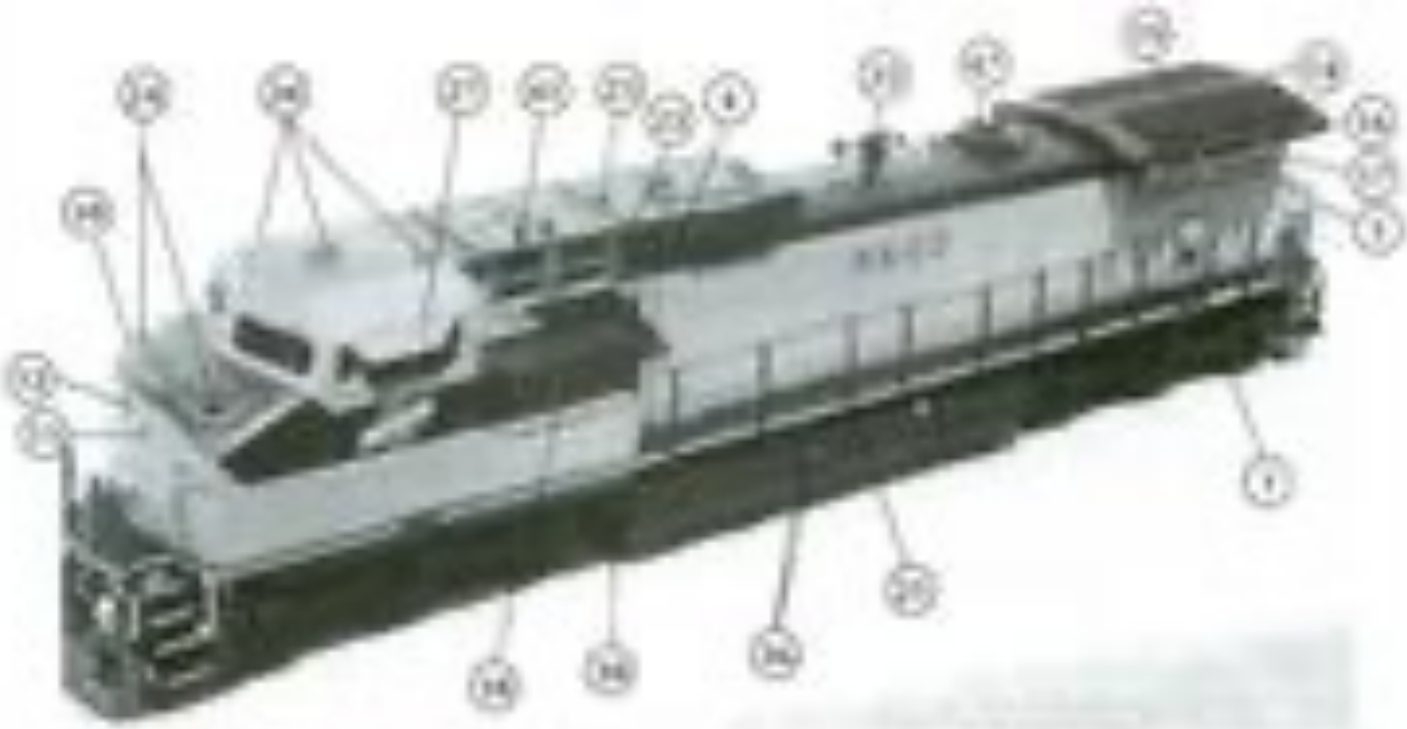
19. If as cut the various grids and replace them and thread. Find 2727 Enforcing the connections. Use poke, a bit and bolt the grate as applying caps only replace pieces when cooled in the shell.

20. Make circuit card boxes with varying sizes of styrene rod and bolts (holes). If desk I have gone more on the roof, just decided only want to connect other screws to unpower spots on others. The antenna is a Shorter to be 0.4 "'.

21. Mount the assembly to the with the brake control shaft. There are green eight 'Dimmers. Fill the old holes and drill new, and can drive on to the model. Mount on the box.

22. Use a no. 77 drill for grabs and a no. 77 drill for the coupler on the rail and on the rear. For ease of mounting, the grabs should not be inserted until after the end is painted. Now that the end contains no components for grabs, I gain use of #80 styrol. Use I Grind the two grabs on the rear of the brake box and the single used on the right rug of the cab and the left rear of the hood. Cement the GRC and bushings and Grandy Line #80.

23. Overhaul A/C and wire the fan



grate on the nose, the grate above the cab numbers, the grate and screen on the engineer's side, and the long run of grate on the low fuel tender's side. Detail the three switches and markings that goes into it, except paint after painting. For our markings we left all of these and ran over the grate.

14. Locate the spot for the small 0.5m headlight on the nose. Start by drilling a hole in the center and when it starts to enlarge, backtrack, tip it up slightly and it will blend beautifully. Then take the 0.5m bit and drill the top hole about twice as large.

15. Reference cab for the steps and replace with Grab Irons #12.

16. Around the 4/4 plan — Install handrails. I like Detail's one piece handrail, it has a nice look to it.

17. The windows are 0.6 x 4.0. So, take them apart. I used the inside 16 rail parts on the inside cab. A very narrow strip of styrene serves the top inside complete the effect.

18. The windows in Detail's Nose 0.6. Fits into the same recess inside the front cowlers to impede and fits just a small area for the handrail. Use cream-yellow enamel to paint the grate in the grate.

19. I used 0.4 x 2.0 for the engineer's door but they failed to position it the proper size as they failed to position it the proper size as they failed to position it the proper size as

GE C44-9W

BILL OF MATERIALS

Bodywork
[illegible]

Windows & Glass
[illegible]

Exterior Detailing
[illegible]

Lighting
[illegible]

Trucks & Wheels
[illegible]

Motor
[illegible]

Couplers
[illegible]

Paint
[illegible]

Weathering
[illegible]

Decoration
[illegible]

Sound & Control
[illegible]

Miscellaneous
[illegible]

MOUNTAIN PINE 50-FOOT BOX CAR

FROM DETAILS WEST HO SCALE KIT

By Mike Danneels

A few changes, some paint, decals and weathering are all that's needed to switch this model to a particular prototype car.

Bill of Materials

Model Manufacturer
Details West ho scale weathered box car kit

Roofing
Evergreen
.010 corrugated

Miniature Hardware
Kadee couplers

Paints
Floquil Reefer Yellow, Accurate Brown, Polly Scale Black

Decals
Microscale #87-250 Mount Hood Railway
Microscale #87-254 Mount Hood Railway weathering decals

Kitbashing a 2-8-8-2

Aristo-Craft's Mallet becomes DSRGW's № 1507

by Alan Blair | Senior Editor | Photos as noted

The modified motor (at left) is visible on the engine as running work, ready to move on and ready to be run

I sit more conveniently enough. I was thrilling through my copy of the extensive print Rio Grande, by Cornelius Hauck and Robert Richardson, when I came upon a photograph of a 1938 scene. 2-8-8-2 Mallet Number 1507 was inside, the Colorado & New Orleans Prototype (as Jeff Hammond), supplied many more photos of these locomotives, in particular № 1507. I liked the look of this an prompt hanging on the woodshed front, the duplexes on the wheels, and the general character of the locomotive that typified it as a work horse. Footsteps photos showed that there was a whole range of modifications made to individual locomotives in the 1930s over and that, because of heavy usage, the engines were all very dirty.

[ARMSTRONG's 1930s] also engines were based on the standard 2-8-8-2 as from the 1930s now. Once there were the Rio Grande modified three engines (and, interestingly, Wheel Components) Aristo-Craft's model of the 1507 2-8-8-2 in the prototype photos. It became clear that it would be a good candidate for conversion to one's RG roster, and that it had been for the Rio Grande.

Complete

To begin, the model arrives. I started working knuckle coupler lever shrouds on the engine and tender. This was a straightforward installation for the locomotive. The new motion coupler required that the cast-on scissor coupler pocket flange be removed even with the bottom edge and blank onto the face of the cast frame. I used a piece of ⅛" scale x ⅛" long x ¼" thick styrene as a mounting pad, glued to the underside of the tender over the pilot. This allowed the bottom surface of the pad to mate with the top surface of the new pocket.

The pilot pad needed mid because was built up with styrene sheet, with exposed heads. I used Tamiya #MS-1 M plastic putty and worked cartridge glued liberally over the screw holders to hide them completely.

Wheel and driver modifications

I didn't like the flange profile or look of the stock steel and working body wheels, so these went on the bench. I installed new wheelsets from an aftermarket supplier to match the prototype's look and loading tracks by cutting off the stock wheels at the axle level with the centering flange for that the stock traction could be used with no modifications. I dipped ½" long pieces of ¼" OD x ⅛" ID brass tubing into the solder to use as a bushings.

I used Gear Rhinestone #4024 Bk. (Blackened) as the wheels. These have a flat profile to balance than the stock wheels, but I like the way they allow the wheels to broaden down a bit.

Driver quiver holds

I really dislike the use of quick-screw to hold drivers onto their axles. This destroys the scale-scaled appearance of my locomotives. To remedy this, I removed all of the screws and the center of which were hidden behind the valve gear and rod assemblies. Before I removed anything, I used a fine-tipped marker to number the external parts which they were still attached to the locomotive. Then I photographed the assembly. The photo was used as a guide to ensure that the parts were returned to their original positions.

I removed the screw center without loosening the drivers. I then filed each screw head flat until just enough of the

Above (left) weighed 1/4-ft 2, out of the box and unmodified

Phillips head screws, used for drive mounting, are clearly visible. Caps punched from a piece of styrene with a hole punch will hide them

Styrene caps, painted and weathered, help the axle screw heads and provide a much more prototypical appearance

can represent or give my locomotives a good look. After weathering the scenery, I use 1/64" thick styrene caps over them. For the caps, I used a paper punch with a 1/2" diameter hole to cut out disks from a sheet of .020" thick styrene. Then I countersunk the outer face.

Relocating the air pumps to the smoke box front

With a control unit, I can still fit the remaining equipment for my locomotives' tenders—all set, and no stamps. Before working on the smokebox cover, I removed the Plumbing-as-Headroom tender, which came off by prying in some from the front with a piece of screwdriver.

The smokebox cover plan is made to view as shown. The brass part has a line for the smokestack bottom casting and the upper area supports the footplate and smokebox handrails. I removed the handrail and left from the smokebox plan by pulling on them with a little rocking motion.

Both sections of the front plate can be removed by first using the former iron as a handle and rocking the front plate gently until it slides off of the remaining lug covers. The top portion of the plate can then be removed in the same manner.

I removed the valve's shallow brass that supports the dome, and lifted the mounting hole with styrene. I lifted gaps and scrapes, then smoothed the area with fine sandpaper.

On the prototype, the front contained six pumps: engines' first a small active down to used for cleaning and inspecting the smokebox. The 1/64th had that done placed front actually before the air pump. And I made my work with two plastic .015" thick styrene discs. I placed it inside and with cement to place as needed.

Between the two discs I sandwiched a piece of the steel between the smokebox upper and lower sections. I decided to glue the two parts together into a styrene backing plate. The shelf and the connecting bracket on the 4 that sit just below the pumps were made with .015" thick styrene.

I made a pair of pumps on other cases are out of 1/4" long x 1/2" diameter brass tube, with washers and caps. Lengths of .012" diameter brass wire were bent to shape for piping and 2-56 nuts were added to represent pipe unions.

I painted the smokebox front with Tru-Color Gunmetal #1700 (Tamiya), then gave it a light coat of Rubbing Black Grime to bring down the shine. I removed the smokebox handrails to the top of the smokebox subassembly to the smoke stack.

Back air tank

The last prototype—long, air tank—is a pitch a space under the smoking board as

The upper and lower sections of the smokebox front. The damaged door has been cut out with a jeweller's saw.

Pipework for the replacement air hoses includes a section of brass tube, injection lined for the weld, and brass wire for the piping.

The front of the locomotive with the original hand hook, smokebox number bracket, and damaged smokebox door.

The modified smokebox front with the front mounted air pumps, wire door, and number board.

the transport cab. I took as an cast from a piece of ¼" diameter brass railway axle (one) ensure each sign. The accounting steps were made from 3" long x ¼" wide x .010" thick stainless steel and I came up the way added. Brass rod was then used to secure the cast to the bodies.

Smoke modification

All of the previous photos showed vertical extensions added to the original bodies to increase capacity. I made new boards from ¼" x .060" thick styrene and glued them directly on top of the wooden sides, above the coal hopper. Each form secured formed to keep the tension to some section. I made a wire layer from styrene (that's partly the main thanks we added to allow a wire layer of coal. I painted these wire parts, first with Krylon #1110 grey primer, then with #1107 matt flat black. I used a slotted screwdriver of a file made roughly, cross, and a drop of dish soap to hold down a layer of Highball Products #614 Lump Coal.

A smoke unit and fuel (boiler for the driver and fireman) is commonly referred to as a brightness box and an cover of the 1940s. I determined the dimensions of the duplicator by looking at several photos and using a bit of perspective (photo) here's I then made a cardboard working style (hanger) to perspectives as needed.

I built my duplicator from .030" thick styrene for the ends and .020" for the front. I used .060" thick slots across the glazing. An overall frame (on forward the duplicator) and .030" clearance between the backsheet. I covered the inside headlight to the covers using a same look with a cut-off disk to remove the original mounting platforms. I then added a cover to the light and drilled and holes for the headlight stud wire.

To replace the front plastic handrail on the top of the smoke bubble I used brass rod .031" x ¼" brass strip. These additions were soldered and sprayed first with Krylon #1104 Gray Primer, then with Krylon #1401 Semi Flat Black. To add size to the glass-mobile wires, I determined the diameter to space the engine and motor were proportionally.

Headlight modifications

To match the prototype, I added chimney cover to both headlights. The chimney on the model's lighter had an odd, stepped shape on them. To do this, I notched them into a convex profile with #105 mini-mill drill manufacturer, then finished shaping them with #400. The finishing surface was turned, measurements with 3 spanner's with a close glue point.

Kevin (left) supplies were updated with Accucraft's. Parts varied using scrap wires in the end beams.

Changes made to the tender include the addition of coal bunker extensions, a digitrax sony range to the tender, and a modified and centered light.

The finished locomotive, sheltered, and weathered with grey rust and chalks.

Cab modifications

The cab figures are provided. Some Crest "Masters the Engineer" (MMET-MM001). I contacted manufacturer some time for details over the coach cab roofs with 0.5 current.

I made a pair of cab shades out of .040" diameter brass wire via the bottom, with a view of 1937 Hyde manner. These holes in the cab sides just over the rain shed shades, accepted the ends of the cab shade frames.

Lettering for N° 2707

After lettering the original lettering, I re-lettered and re-numbered the engine 2707 with a set of Railroad Diesels #1941. I had colors Marble Varnish Acrylic. I used a set of Micro Scale #94002 Railroad Reverse for cut and numbers for the headlight front logo and number boards. I sprayed on a coat of Krylon #1309 Crystal Clear to give the decals a smooth surface to adhere to. When the decals were completely dry, I used a coat of Krylon #1311 Matte Finish to seal the surface.

Weathering

To weather the new N° 2707 to look like it had seen hundreds miles I used a variation of grime, rust and chalks. To start with I ran dry brushed on body and both on a length of weathered track. With gluing the wheels and running gear a light coat of grey primer. This gave the metal parts a nice scuff for the chalk to adhere to. I gave the body down the running boards of the locomotive and the same body down the boiler of the tender a heavy dusting of black, since the prototypes were coal fired. The running gear and body frame received a base of warm gray. I used the chalk with a coat of Krylon Matte Finish. To finish up I added a Powerful weathering.

This has been a very rewarding project starting with the research, then on to the modifications, weathering, and addition of details. The engine is smoother and gives the impression that it has seen hard service and is ready for years. My children at N° 2707 make nights at home pulling a long string of cars. ☺

Use a LASER CUTTER for DETAIL PARTS

New modeling methods speed construction

By Jack Perkins

Once Andrew had worked out the basic shape of the bridge, he began to think about how he would make it. He decided to use 1/16in (1.5mm) thick plywood, which he could cut with a scroll saw. He drew the design on the wood and then cut it out, before sanding the edges smooth. He then glued the pieces together to form the bridge's deck and sides.

Andrew then began to work on the bridge's cables. He used 0.5mm (0.02in) diameter steel wire, which he bought from a model shop. He drilled holes in the deck and sides of the bridge, and then threaded the wire through them. He then tied the wire in place and trimmed off the excess.

Finally, Andrew painted the bridge and added some details, such as lamps and railings. He used a variety of materials for this, including plastic, metal and wood. He also added some figures to the bridge, which he bought from a model shop.

Andrew's bridge is a beautiful piece of work and a testament to his skill and patience. It is a great example of what can be achieved with a little bit of time and effort.

A workshop I plan to eventually build in the future and most of it is underway in sims. This is where you picked up this book and will probably end up most of the time. I'm a retiree now and I'm envisioning lessons and classes. The building itself will have walls and metal windows (without bars) and I'm using an original build as the inside.

An order on its way to Alibaba.com arrives. Several packages were weighed one time. Drawings were made to precision in Corel Draw and the laser cutter cut the parts to specifications. Near the middle a little burnt was made to expose the wire from the other scene.

hand tools to make things. On the first [illegible] I started building bigger and better. I had a business going, selling items to Afghanistan. This is when I thought why not try to make such a [illegible] friendship. With the knowledge I could make better, more efficiently.

Once I settled into a house, I acquired the usual list of power tools: table saw, scrollsaw, and welder. I would read the news on many subjects about everything. In 2018 I was commissioned to build the 1/35 scale railroad described here. With small steps made I in scale trains, and figures, locomotives and landscape available in this scale, the first is always all I have to build dozens of structures from scratch, which is time-consuming. It was done this mostly as a hobby. Now this is me on steps. However, when building on a client, one has to structure. This is where the laser cutter came in.

What can a laser cutter cut through?

Plywood. From ¼" up to ½" thick it cuts cleanly and you can make things with slender sections such as window mullions and miniature iron work. I mostly use ¼" thick plywood for mullions and frames, doors, and certain trim pieces. Plywood is great for indoor work but a non-issues mounted for outdoor use.

Wood, such as rosewood, up to ½" thick, depending on the hardness of the piece being cut. I like to use the laser cutter to cut angled pieces used for A-joining.

Acrylic, up to ½" thick. Acrylic is the most economical of the plastics and it laser cuts well. This piece lend to the hobby as it is not as good for spindly things such as furniture.

ACM plastic, ¼" to ½" thick. ACM plastic is great for laser cutting. It is a blend of acrylic and ABS. It laser cuts nicely and is more flexible than acrylic. It glues well using acrylic type cements. In my opinion, it is the best all-around material for laser cutting. Its drawback is cost – about twice the price of acrylic.

ABS plastic, up to ½" thick. ABS is a strong plastic that's good for structural parts. Its drawback is that it is heavy when being cut. A strobon and fumes a residue that has to be cleaned off of the machine. It is also a little harder to cut through. I use ABS for special projects where strength is needed and the cutouts are not too detailed. For example, I would make a building's wall, but not window and doors. Just all it ABS is available as thick as .060". Thin plastic are useful as surface checking pieces. Sometimes I laminate parts to create thicker pieces than my laser can cut through. Even use thin ABS to cover the laminations.

Styrene, up to ½" thick. Styrene is not the best choice for laser cutting. However, it is available in a variety of shapes and sizes and, especially, railing, including corrugated and other patterns. I use it so much that some year I would use ABS.

Paper and cardstock. I use various types of paper products to make test pieces. Old manila folders are good for making test patterns. They cut quickly and cleanly. For a more substantial test piece, illustration board which is about ¼" thick, works well.

Foam rubber sheet is a crafting material also called EVA foam or craft foam, about ¼" thick. It comes in a variety of colors and is useful for making flexible parts. I have used it to make seat cushions, as well as craft projects for the grandkids. If you want

Software

Advantages of a laser cutter

Modeling a Pair of Kori-McGee ACF CENTER FLOW 3650 Hoppers

Article and photos by Bob Brandt

I recently discovered photos of two Kori-McGee ACF hoppers on a Canadian freight car site. A large part of this hobby for me is duplicating a prototype railroad's rolling stock for my HO modeling era. Using photos, sides, and interior, I am able to capture the correct look of actual freight cars that were operated on my Minneapolis-based Iron Gate model railroad.

The internet has become an incredible tool to learn how to build cars prototype freight car modelers. It's amazing what a prototype photo of a freight car that was rolled somewhere 50+ yrs. This research can duplicate the car paint scheme, lettering, weights, and various weathering patterns. Photos of these ACF 3650 hopper are perfect examples. MKT 43971 and ACF 43798 can be modeled using these photos. Fortunately, there's no big upgrade. Most ever produced these cars to their AAR car paint schemes, lettering, stenciling, and weathering. One of the best shots Kori-McGee cars could be found in various locations, however, I needed an address and inspection details. The grab irons and steel walk on standard AC Athearn Blue Box hoppers and would certainly need to be replaced using wire grab irons and .015 thick styrene through out the car. I also wanted to install the ejector rod cranks and operating cranks on the prototype photos. Since the photos were taken at the time of the 1970's, I would also be able to duplicate the rust weathering found on the ACF's and the fresh paint jobs on the ACF CENTER FLOW hoppers.

Both trains: The finished models are ready to be placed in service. Using them to replace the cars I have upon my layout, keeps me the satisfaction of a prototype modeled "nothing on and nothing over project a true scale model look."

BILL OF MATERIALS

ACFX

LAND
LAND
LAND
LAND
SOLVENT

Teaching O gauge

By Roger Carp · Photos by Christopher Esposito

CHRISTOPHER AND AMY ESPOSITO USE A COMPACT DISPLAY TO SHARE THEIR BACKGROUND

Lifelong O gauge enthusiast Christopher Esposito and his wife, Amy, want their three wonderful young children – Giovanna, Lorenzo and Lucia, who range in age from 2 to 7 years – to learn more about them and what they hold dear. Like all parents, they hope their kids will express interest in their family's background while seeing the meaning in what their parents value and how they strive to live.

family values

COVER STORY

A The Esposito family ushers in its 1:4 Hook & gauge layout as "The Big Little Railroad." They were the Central Rift of New Jersey and the same name for Hook.

LAYOUT AT A GLANCE

Name: The Esposito family's O-gauge layout

Dimensions: 4 x 12 feet

Track and switches: Lionel FasTrack O-scale diameters, range from 36 to 48 inches

Electric power: Atlas O, 4 small amps

Rolling stock: Atlas O, Lionel, MTH, Weaver, Williams

Controls: Lionel Legacy CSR-100 (2), TIU, DB locomotives with Lionel Sound/Steam Command Control and MTH Digital Command System

Accessories: MTH

Miscellany: Lionel, Menards, MTH, Woodland Scenics

Vehicles: Corgi, Matchbox, Road Champs

Figures: Atlantic, Woodland Scenics

Starting up with Lionel

Christopher can reasonably consider himself a lifelong railroader. He was born in New York City. Though local to the sort of the Soldiers and Sailors, he became a railroad in the town that the state installed into the Triangle Washington Bridge on the Lincoln Tunnel. Something about here inspired

In contrast, trains of much more classic Bruce Springsteen and railroad themes — agrees with Christopher.

Bruce's love trains used his classic what has captivated Christopher and mainland every part of his life as a result since. Forget his age, Christopher belongs to the postwar generation that knew the glamour of the world's greatest toy train maker. Or at least he wants it to a overwhelmed now.

Christopher, as much as all his brothers, [illegible] Classic. Eric Trains will recall, has been playing with O-gauge trains since the postwar era. Since he was a toddler in his diapers, though

always wanted experience. Since his dad, were the trains Christ Esposito had received as a boy for Christmas, 1939.

In the family's small yet comfortable apartment in Ramsdale, Sallers and son opened by an [illegible] Lionel Classics and lots of Plasticville U.S.A. structures. Frank still received his favorite train as though they were made out of gold. He would remain the one approached like so. [illegible] Flyer Hudson 4-6-4 and assorted cars with a distinctly high level of respect.

Once the family had settled in their [illegible] Christopher—then seven years old. Frank set determined to engage his son in the never-ran hobby. The two of them traveled to Middlesex Hardscape Co. to find the transport the train layout.

Christopher and his dad, with assistance from Uncle Ed Cleary, proposed to build and operate a 4:1 x 12-foot O-gauge railroad at home. Little did Christopher realize how the experience was going to shape his role as a father.

Christopher and Mary Hamburg Esposito get help with the layout from Lucia and Lorenzo.

Setting the stage

Among the [illegible] Christopher plan [illegible] alongside his dad and uncle were the ways a model railroad served as a teaching ground for specific skills and general character traits. As an adult, he demonstrates a fascination with [illegible] recognizes a cool model railroad first of its

1. **On a morning in 1955, a train scrapes and subtly countercock across tracks from the dead-end timber sheds, a fisherman at their feet on an empty siding by a factory.**

A FAMILY-BUILT LAYOUT, REGARDLESS OF HOW COMPACT, WOULD HONOR THE FATHER WHO HAD RAISED LIONEL TRAINS WITH HIM.

1. ABOVE: The Central RR of New Jersey turned out to be one of the 10 fourth American railroads that purchased the FL-16-AU Train Master diesels from Fairbanks-Morse.

2. LEFT: An Alco RS-3 road switcher, bedecked in the green with yellow stripes scheme the Jersey Central used for its first diesels, leads a short freight on the upper level.

3. RIGHT: The base scheme with orange detailing on Jim Jersey Central F7s A-B diesel combination leads an through passenger train around a white working turn.

Bird Bank, N.J., and the activity to host enthusiasts on long-gone railroads. The New York & Long Branch RR is the one that part of the main server. Above that is an equal shortfall brought of the Central Railroad of New Jersey (also known as the Jersey Central).

Unfortunately nobody making the journey of the CRR and exploring its heritage the opportunities the past, however, a visit during summer days. The main focus is passenger trains, notably the Blue Comet and Crustacean trains the CRR's two-one of the heaviest northeastern (pre-consolidated) in 1976 to New Central).

Unwavering goals

"My reason," Christopher says, "I'm a pioneer." So were he had chosen the CRR as the focus of his layout. He places RR into place. We more of distressed railroading there is successful. "I felt I could share the feeling of a bygone era but mainstream railroad like the Jersey Central as the result was allowed it to it."

Furthermore, Christopher committed to constraints on a practical of the CRR can work up a single-track railroad during the decade immediately after World War II. The advantage to selection that we may, as modelers and railfans, rely fully on the used still in short consecutive operating terms and diesel locomotives.

Putting the finishing touches on the fairly straightforward track plan consisted two levels of scenery. They were going to be independent and linked by a gradual line). each owner to suggest a difference and lavishly part of New Jersey.

The principal scenes surrounded a U-T but each area's divisions left the three. A transect the town of Red Bank, where the Pennsylvania RR used the Jersey Central can side by side on the New York & Long Branch. The passenger terminal and car serving premier coastal ports at Jersey City, Elizabeth, and Montclair.

The elevated area was 4 x 7 feet and two 2 (inches above the lower one. A log crossed the road Fountain Avenue, which ran between Tidewater and Riverbank.

Proving operations

Most of the geographical and design logical setting, Christopher prepared on running the operations resembling freight work and laying track. He looked for ways in getting help those he considers at what ever work they could master.

Up near the tabletop boundaries Christopher long ago mastered the handling in the construction of any layout. He relied on 1 x 4 pieces of lumber for the legs and braces. He added diagonal webbing on the front to give the railroad a more polished appearance. That was helped the layout fit in with the room.

Two hands helped Christopher score right into the pictured scenes of Central Old Track Cement songs from 'at' to the 'z'

ABOVE **An adult X-Ike Expanse family 4 layout occupies less than 80 square feet. A smart plan provides lots of action on two levels 48 and 12 inches above the floor.**

RIGHT **Not among ten trains seen steam months passed actually running on the Central 48 of New Jersey, Christopher manages to relive the glory of that fallen flag by operating O gauge models, including a pretzel 4-4-0 in Lionelback.**

disarms all the way up to 40 inches). So make the tracks and switches look realistic by painting the rails and added ballast.

Ease of use dictated going with the power source and levels of control Christopher has come to depend on. And he wasn't the couple late children to handle with an earth rate so that hand-on-one direction will accommodate.

Christopher added a pair of Lionel 180 watt "bricks" to supply juice for the pro main circuit and a single MTH 100 watt booster for the option one. "That's more than I'll ever need, but I'm not skimping on the lighting."

Surprisingly, Christopher operates the trains and accessories using "conventional" Lionel Lionel Lionel and Digital Command System (now MTH Electric Trains). He does so because these two manufacturers have the largest of the accessories containing engines on the market (other than Lionel).

"I wasn't so surprised if I all use tracks and even Lionel can operate trains using the handheld controllers," Christopher said. "That really isn't comfortable doing so, no need to install the pointer transformer I grew up with.

Constructing Landscaping

Along the way, months after soldering hundreds more, I'll bet in the door some time on the layout using 44 gauge wire, Christopher plunged into making scenery. Having little helpers made the process even fun and more complicated.

Fortunately for Christopher and the team of carpenters, painters and trees he landscaping endure the trains and trees he also do the range of materials and paints on the market. Patience exercised at teaching these tasks can mean a good deal more. Christopher, recently recovering the journeyperson of wire gymnastics.

The Carpenters assisted in framing the mountains of the rolling hills as there are lots of control they simply ran of strips of cardboard. Once done, Christopher and his lady-helped pieces of Plaster Cloth, an item sold by Woodland Scenics.

While the lightweight shell was dried thoroughly, Christopher constructed trainmen and had eaten up hers to finish on the layout of grass and low brick house paint he bulkhead would give an authentic look. Before this base coat had dried, over plastic, they were sprinkling on ground foam. Christopher had wound together different shades in a large plastic bottle where cap had been re-a.

Glitter and dirt should not be ground down and let it also hold in the nuts of the various landforms. Then they added

to-two-and-more grows using the more-conventional fast tokens (commonly which give by passing habitual fantasies the rate.

Wire-plated 'scenics provided the scenic two more that 'bonded the scenery. Rock drops caused the movements and rolling to appear sprinkle, particularly after the out distinct, industrial, and railroad-modified ornament and scraped.

'The Big Little Railroad'

The Street 'I cannot unknown in itself as 'The Big Little Railroad' and the two

CTT ONLINE

Ian Mortimer's models at the Caversham Railway Engage Event, and to enjoy Christopher's own and the Caversham Railway

opposite to a Scenemaker where he comes to describe what he has achieved with rectangulate how his wife and help from his children. Assorted areas, design doing one or characters join together to give the O gauge layout a real fun identity.

Most of all a stunning train at grow as he chapter looks and operates now. Christopher and his family will continued to alter and upgrade it. However, as plans like Alan first real interesting where on event, to contribute to changes.

Needless to say, there's all for it. "I would love to expand the railroad with a few more trucks," Christopher said, "and will spare along the same lines for freights to work it. I'm also thinking about putting in a small oil depot."

However 'The Big Little Railroad' grows, one can bet Christopher will not be working to himself. In fact, he predicts the

ASSORTED AREAS, THOUGH DISTINCTIVE IN CHARACTER, JOIN TOGETHER TO GIVE THE O GAUGE LAYOUT A UNIFIED IDENTITY

kids will become ever more enthusiastic about helping – until the day they begin talking about building their own layouts! "Then we'll start selling what's left to the next generation."

Make your own stripwood

It's easy and economical to make exactly the sizes you need

PROJECT

by [illegible]

Virtually every woodwork project is [illegible] for [illegible] of one size or another. Purchasing wood as a [illegible] can be very economical and convenient. However, with a good, accurate table saw, you can make [illegible] of [illegible] any size you want, as [illegible] that you can make it an efficient [illegible] process. It also [illegible].

The [illegible] table saw is the [illegible]. While the [illegible] is not a job [illegible] [illegible]. If you plan to [illegible] a regular basis, it will [illegible] an [illegible] that will [illegible]. There are [illegible] [illegible] on the market. On most [illegible] [illegible] a good one.

Terminology

Before we get started, [illegible] some [illegible] associated with [illegible] and sawing wood [illegible].

- The **kerf** is the [illegible] of the [illegible] that [illegible] the top of the saw. It's [illegible] [illegible] saw's [illegible] or width of [illegible].
- The **blade** is [illegible] of a circular [illegible] on the edge. It rotates around [illegible]. There are many types of blades available, [illegible] [illegible] [illegible]

- For a **plate gauge** or **centre gauge**, see the centre section. Glue pieces to a slot at the table end, but a metal nail into a notch to push the wood through the blade. This has a nail for angled or centre work or staple cord.
- A **push stick** is a simple shop-made tool used to safely push the wood through the blade.
- A **featherboard** is another simple tool that is used to keep the wood pressed firmly against the fence. Both the push stick and the featherboard are responsible and are important safety features.

Safety

Attachments are most important things to prevent injury to the user when using a table saw, or any tool or machine. So, nowhere in this guidance booklet, a 13A power socket, dressers, dressers, and a fully-enclosed saw, and power-off, double-pole on-off switch a table saw is not to be used without such a guarded saw blade fitted.

- Make sure to use the blade guard in place. Whilst one might consider it a nuisance, you'll get used to it.
- Do not stand in the line of the blade (cutting) in case of kickback. Sometimes the blade can grab a piece of wood and kick it back at you (called kick-back), so one doesn't want to be in the line of fire.
- Always keep the workpiece flat against the table and fence at all times. This must seem obvious, but I know even I have had experienced carpenters who have come to grief in a few moments.
- Never use the saw fence guide with the fence on the outer side. The idea is to guide the wood.
- Always use a push stick to help push the work over the end.
- Always position the saw blade just slightly above the height of your work.
- Once switched on, let the blade [illegible] before you start.

Making a push stick and featherboard

A push stick is really quite an easy piece of wood, and a featherboard is also very simple to make. Both the push stick and the featherboard are responsible and are important safety features.

Figure 2: A table saw. This is one of the more versatile tools for a garden enthusiast.

Figure 3:
Making and using a push stick

A featherboard holds the work securely and safely against the fence and prevents kickback.

I started with a railroad 7/8 × 4" steel T-long, straight and free of kinks

The blade can be accurately set with a dial caliper. Here it is being set for a 4¼" width

After a test cut is made, the set piece is checked. The saw's gullet depth should be a bit more than the thickness of a spare 4" spring steel rule—more than enough for most

A set of spacers is quite useful for quickly setting the blade for common thicknesses

alignment. Make several thin cuts, 1/16" deep, in two end of the board, as per the photo. Then cut the slope with a hacksaw or by hand with a coping saw or razor saw. Remove the blade/T-bolt/fence and position against the work as shown to check it. The cut side the cut away the workpiece as you angle so that the pressure puts a flush into the work. I cut another slope the bottom/end of the saw's right it should seem the work. Insert the saw tightly against the fence. The bottom-board serves the dual function of adjusting and to make sure the cuts are square to it is necessary the workpiece stock sticking the work high. The bottom-board was a well, more secured the board to the saw-horse with two screws. A bottom-board is used when the work is too small for fingers on guide.

Making setpieces

Most setpieces other than used work Guides that are around 4" or 5/16" for thick material eliminate geometry. Start enough of the blade protruding above the saw to cut through one by lumber. I (a 1" × 6", 5" × 1/2", etc.). Choose a piece of wood that has a long straight grain, is free of knots, and is not warped or cupped. If you have a specific project in mind, cut a piece off the board that is of the appropriate length. If you are just building a bunch of assignment the board. I find lengths of 12" or so to be handy (photo 6). The longer the piece, the more pressure it will be on and strength the saw.

When making up the saw, the fence needs to be perpendicular to the blade. It must also be absolutely parallel to the blade. There are a variety of ways to accomplish the fence the saw, a thickness the board in a straight running and to mark (photo 7) to make all cuts at the same as it was. If I am building the saw for someone, I'll determine the gap between one of the cutback teeth on the underside and the edge of the fence with a dial caliper (photo 8). Then I make a test cut, determine the needed (photo 9), and adjust the saw a little. If necessary, move given the suggestion of the guide past the saw. I find that used with an accuracy of .005" are not noticeable with practice.

The working size of standard sizes (1" [2.5 mm], 1 inches a rule of operation that I rarely used keep in a little box near the saw

The square is essential between the blade and frame. Use one to an accurate square area, or cutting too.

Use a push stick to push the wood the last little bit of the way through. The bandsaw's table has even been a glass cupboard for times.

With this setup each piece went from a single 7' x 4' 1/2 sheet to a nice and accurate set.

Make programmable crossing-signal lights

The versatile PIC 12F675 is the heart of these projects

by Dimitri Bodnar

In the April 2011 issue of Circuit Cellar, I offered an overview of the PIC 12F675 microcontroller and showed how it could be programmed to create various alternate lighting patterns: a Mars light, a lighthouse beacon, and a Marquee chase display. If you have not read that article, I suggest that you do before delving into this one.

In this article, I revisit the 12F675 and show you how to create a programmable crossing-signal light. The first project is a crossing signal light like those that can be seen across the country at grade crossings (**photo 1**). In addition to using the 12F675, I have added a voltage regulator to each of the circuits. This allows you to power any project from a power source that supplies more than 5 V, such as a "wall wart" power supply that plugs into a 120 V AC outlet. The job of the voltage regulator is to take a DC voltage that is a little or much more than 5 V and reduce it to exactly 5 V. Even if the input voltage varies, the regulator will maintain a steady 5 V output.

Two LED crossing signal light

The first project is a crossing signal light like those that can be seen across the country at grade crossings (**photo 1**). In addition to using the 12F675, I have added a voltage regulator to each of the circuits. This allows you to power any project from a power source that supplies more than 5 V, such as a "wall wart" power supply that plugs into a 120 V AC outlet. The job of the voltage regulator is to take a DC voltage that is a little or much more than 5 V and reduce it to exactly 5 V. Even if the input voltage varies, the regulator will maintain a steady 5 V output. The 7805 voltage regulator I selected can be used to power anything drawing 1 A or less. The 7805 conveniently gives 5 V at its output pin.

(This review of voltage regulators has been given the (**photo 2**). Pin 1 connects to the input voltage; pin 2 connects to ground; and pin 3 is the output pin that gives the regulated 5 V output voltage.

If you will, treat the voltage regulator with a bit. voltage drop is not in the data sheets for output voltage. Data through the 7805 at the output voltage may be its designed to be, and a circuit that doesn't work. Where you should spend a bit of time on the regulator

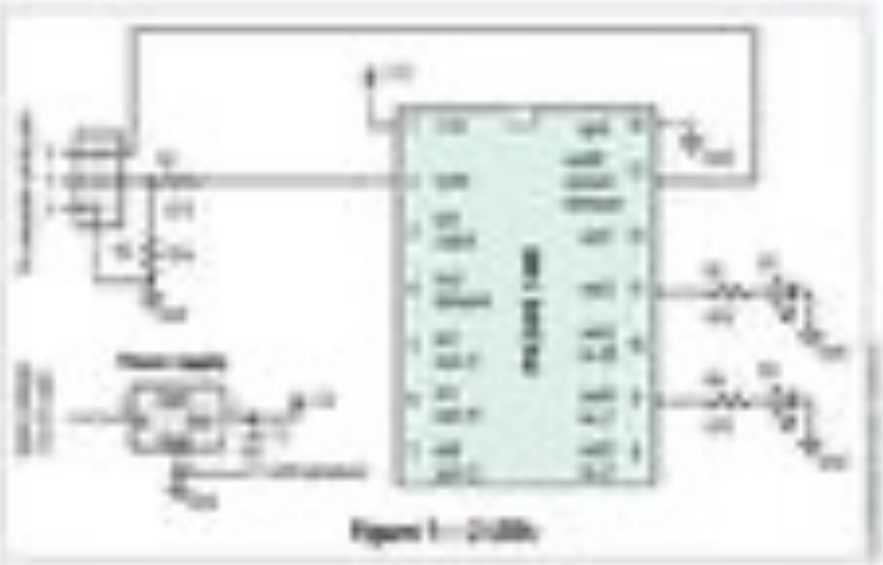


Figure 1: [illegible]

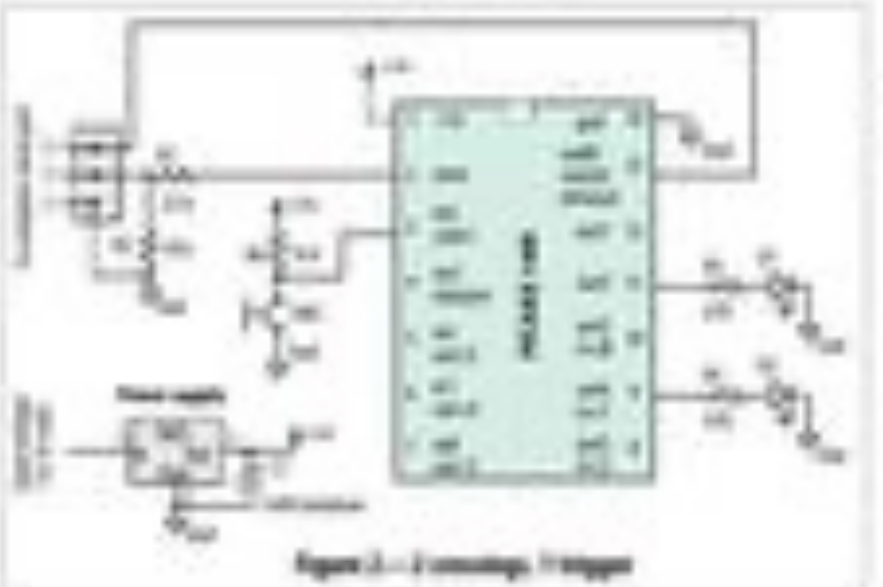


Figure 2: [illegible]

A standard crossing signals. Now they can be controlled with a microcontroller

The 78M05 voltage regulator

ing accommodating the size of a hole and so on to suit the 78M05.

A 0.1 multilayer capacitor is wired across the output pin and the ground. This helps to keep the voltage stable and means we need a fair input voltage to form a proper supply that is not self-limited. In **photo 4**, the capacitor and voltage regulator are on the far left, next to the red and black wires that go to the power source for the circuit. The capacitor is polarised and one lead is marked as plus (+). The plus lead is also the longer of the two leads. The three wires visible behind and 90mm goes to circuit PC tab programming.

Program 1: A simple crossing signal

Note: The code for all of the programs described here is available at Garden And page 'exhibits' has the address on p. 47.

The circuit for the program can be seen in **figure 1**. This program is well commented so that you can follow its operation. These comments should help as each line is entered. Remember that the AT89C51 command prints text or other information to the serial exhibit the program either. This is extremely useful in debugging the operation of a program and in debugging. The TCON.0 (command) simply ensures the pin that the LED is connected to. In the LED is off. But TCON.0 command turns it on. If the LED is off, the TCON.0 command turns it off. If the LED is on, the TCON.0 command turns it off.

This program will start flashing the LEDs as soon as power is applied. The rate of flashing is determined by the "time" statement. To make it flash more slowly, increase this value, or make it flash more rapidly, decrease the value.

Program 2: A simple crossing signal with timer

While a fast (400) delay we can have the crossing lights flash for 10 seconds, then pause with both LEDs off for 10 seconds, then repeat. You will note that I did not simply make the program pause for 10 seconds with a FACTOR (0000) command. Instead I had the program pause for 1 second 10 times without a beep. This allows the program to display how far along in the process we are on the terminal. The "T1.0" used in the TEST 0.0 line reads a voltage present on P1.0 and, if it is connected to that

A. Two capacitors and voltage regulators are on the far left, next to their red and black wires.

B. A pushbutton switch and 10K resistor have been added for the trigger circuit.

C. A common-anode circuit board has been used for this project. The round socket on the bottom right is for a battery supply, and the green wire on the left is for programming with a computer.

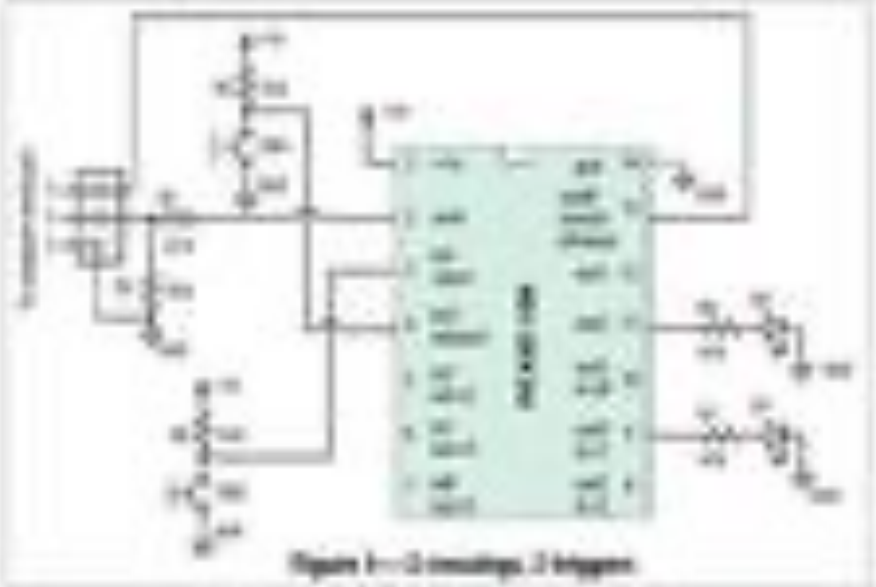


Figure 3—12 readings, 2 triggers

Going further

Several additional programs, as well as videos of the circuits described here in operation, are available on the author's website at https://brainfertilizer.com. These additional programs use the same circuit board and hardware (a waterslide lights, a sequencer, a railroad lights, a strobe light, and a traffic signal. Using the circuit with very bright LEDs is also explained.

the next three pulses on a cent line.

Program 2: Triggering the sweeping

The first program causes the lights to flash continuously when power is applied. With the addition of a few parts and some changes to the software, we can have the sweeping lights flash only when we push a button, or when a motion sensor trip, activates the a magnetic reed switch.

We need to add two additional parts: a 10K resistor and either a SPST (single pole, single throw) pushbutton switch or a reed switch (**Figure 3**). One of the switch contacts goes to pin 3 on the microcontroller and the other goes to ground. The 10K resistor connects between pin 3 and 5V. Wiring it this way causes that bit to go "one" (5V on pin 3 when the button is not pressed and zero volts (ground) when the button is pressed. The resistor prevents a short circuit between 5V and ground when the button is pressed.

There are three lines that are used for the trigger. The first enables or sets light loop, where the circuit continuously looks for the switch to change from 1 (off) to 0 (on). It's done this for the 4 or so. A test loops and keeps checking. Meanwhile, all lights on (with one exception). I added a line that pulses "the Trigger Time" low (for example) while it is reading. I did that using the monitoring so this way lights are no follow the progression of a program, just as we did with the 10 second PAUSE in the previous programs.

After looking, I recommend removing the line with "the Trigger Time" as it slows down the loop a bit and useful would to the program showing a fast strobe display. In contrast, I just put an apostrophe before it and it has been a comment.

On the prototype board, a pushbutton switch and 10K resistor have been added for the trigger circuit (**photo A**).

In **photo B**, the circuit has been built on a custom circuit board. A stud control has been connected to the trigger input pins and is being re-used on with a small magnet attached to a popsicle stick.

If you want the lights to flash for more than 10 seconds, change the 10 to a larger value. Changing it to 100 would make the lights flash for about one minute.

Program 4: Triggering from either direction and stopping when passed

To for a useful sensing signal, the lights should be triggered by a train coming from either direction, and the lights need to stop when that train has safely passed. This requires that we have to use two reed switches—one on either side of the crossing signal (**Figure 5**). Triggering one of the reed switches starts the flashing and triggering the other stops it.

The program has a loop inside of which reed switch is triggered first so that it waits for the other trigger to stop the signal. The condition of reed SW1 not closed as

A breadboard for two LEDs, two triggers and three push-to-make switches

A four-potentiometer hybrid board mounted

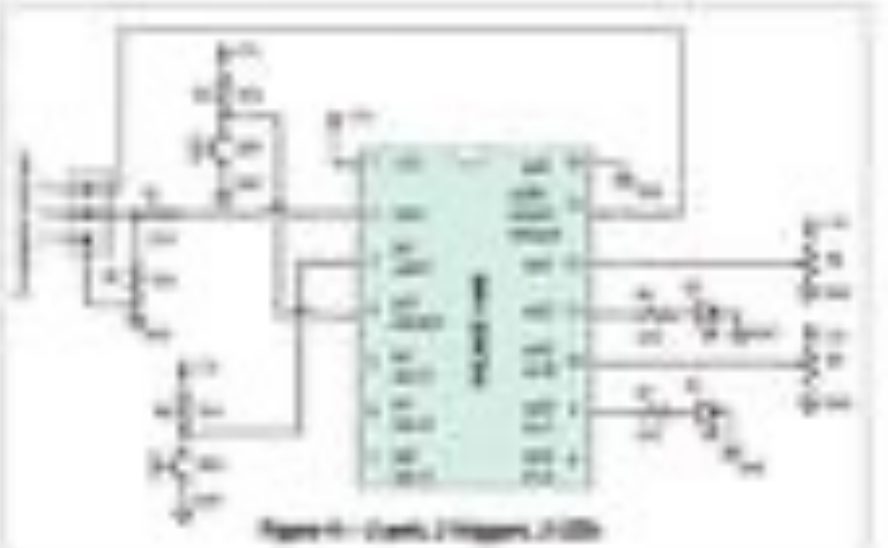


Figure 4: 2 pots, 2 triggers, 2 LEDs

a delay) these statements can be nested in the statement as a pair. For example here they are nested. It is checked the statement as not not of the pot is 11 and the pressed or the opposite and is pressed, the voltage available at the comparator will change from zero volts to 11 as the shaft is turned. The 11 is so we could read the position of the knob as a percentage by separating the voltage. This allows us to dynamically adjust the operation of the incoming signal.

The schematic in **figure 4** shows the circuit with two LEDs, two trigger wires in on, and two pots. This will allow us to create a program that can vary the rate of flashing, as well as have two LEDs that were a trigger switch is closed.

In **photo 5** the two potentiometers have been installed on the board. The capacitors allow us to use a potentiometer to vary the length of time that the incoming signal was low. All we need to do is to check a low than (set) the pot's position (0-1023) and we then refer to set the number of times over the higher than.

Program 5: Two triggers with a pot to vary speed of flashing

In this program I have modified the existing program with two triggers so that a pot changes the rate of flashing.

Conclusion

I hope this you can see from the example programs provided here that, with basic hardware and simple programming, you can bring an array of light based sensors to your garden enthrall. I have added a number of these extensions to my own enthrall. In the tunnels that the Pittsburgh Corridor Railway Services will use, and in the enthrall at Pittsburgh's Children's Hospital. And in time will combine these ideas to the stations and give children (and to adults) and adult tasks to collect and fulfill. Please let me know if you have any questions at it's use help. You can reach me at dave@dawsonbooks.com

Online extras

Programmed source files and pictures are available for all the projects described here. Visit www.elektor.com/magazine/elektor-201 and click on "Downloads & Interactivity" under "More info".

Modeling CANADIAN main lines

Canada's largest layout lies beneath the tracks to Montreal's Central Station

By Guy Mayer • Photos by Yves Dionne

2. Scenes on the expansive layout range from industrial centers to rural locales. It's a task that's utterly massive. A club account Canada Central RLX rides the main line, which represents a Class 1 route between Ontario and Quebec.

Generations of model railroad enthusiasts have pondered where and how to accommodate a model railroad in the limited space available to them. One age-old quandary calls on a slightly different aspect when a club wants to share their 1,000 square feet of industrial space in downtown Montreal. The founders of the Montreal Railroad Modelers Association (MRMA) likely wouldn't have imagined a challenge as great when they founded the club in 1960. But by 2011, the opportunity to fill such an expansive space with an HO scale layout was not too great for the MRMA to tackle.

That's where a Canadian National 85-membership, situated beneath the railroad tracks leading to Montreal's Central Station, became home to the MRMA and the 950-scale Canada Central RLX — a layout that's now known as Canada's largest. The model railroaders can fortunately refer to the club's 1,200-foot space primarily for a layout, but that's precisely the challenge that MRMA members faced. The pioneers quickly came to grips with the abundance of space and groomed a layout concept for a scenic Midwestern route combining many

While the notion of building a model railroad represented railroad was more refreshing, the pioneers required an

1. For more than 50 years, members of the Montreal Railroad Modelers Association have worked in a railroad-themed environment to construct and maintain the 37 x 123 foot HO scale Canada Central Ry. In addition to miles of track and scores of locomotive models, the layout also hosts prototypical operating sessions

accomplish and it has not be relieved by, even for a well-established club. Ultimately, the MRMA's solution was an original design to focus on a more manageable freelanced Class 1 railroad operating between Ontario and Eastern Quebec, during the summer of 1970.

The resulting Canada Central RLX, with its vast network of track, hundreds of structures, expansive rural and urban scenery and endless train-operating scenarios is a massive undertaking that has engaged the time and talents of more than 150 MRMA members since 2011.

Club background

If not for a love of flying, model railroading is a close second. The common

factor, much like the MRMA's pioneers, wouldn't exist today. Fortunately, the discouraged airplane modelers were discovered the joys of model railroading through the creation of a new club and are invited [illegible] to join. Construction has also evolved to the basement of an apartment building.

[illegible] MRMA membership said the Canada Central RLX layout grew to meet the space-and-scenery needs of its members. After securing the basement space and establishing the current layout, the club now has approximately 85 active members of various backgrounds, professions and ages. Retirees, engineers, teachers, mechanics, police officers, lawyers, civil servants, [illegible]

The layout at a glance

Name: Canada Central Ry.
Scale: HO (1:87)
Size: 27' x 123 feet
Prototype: Fictional
Locale: Quebec and Ontario scenic eastern landscapes
Era: 1959
Style: walkaround
Mainline run: 1,200 feet
Minimum radius: 60" mains; 36" branch
Maximum turnout: no. 8
Maximum grade: 3.3 percent
Benchwork: L-girder
Height: 54" to 60"
Roadbed: Homasote
Track: code 83 and 100 Nickel-silver and handlaid
Scenery: Foam insulation board and cardboard covered with plaster
Control: NCE Corp. Digital Command Control

railroad employees, artists, and others make up the contributing workforce charged with operating and maintaining the Canada Central Ry., which until the 1970s dominated as a rail railroad.

Twice a week, members gather at the club station to run the trains on the first Wednesday of the month or to make sure the layout, known the layout is ready between shows. Since the layout is designed to run continuously, trains can run for hours at a time. Members can watch the trains from the comfort of the viewing area, or they can operate them from the aisle. Each train has a crew of two, a conductor and engineer, who work together to keep the train moving safely and on schedule.

Each crew member is responsible for a specific area of the railroad. The engineer controls the locomotive, while the conductor is responsible for the train's cargo and passengers. The crew must work together to ensure that the train arrives at its destination on time and in good condition.

The railroad has a variety of trains, including freight trains, passenger trains, and special trains. Freight trains carry goods such as coal, lumber, and manufactured products. Passenger trains carry people between different cities and towns. Special trains are used for events such as holidays and parades.

The railroad has a number of yards, where trains are assembled and disassembled. The largest yard is the Central Yard, which is located in the city of Central. The yard has a capacity of 500 cars and is used for both freight and passenger trains.

The railroad has a number of bridges, including a large steel bridge that crosses the Central River. The bridge is 1,200 feet long and has a maximum height of 150 feet above the river.

The railroad has a number of tunnels, including a long tunnel that runs through the Central Mountains. The tunnel is 2,500 feet long and has a maximum height of 20 feet.

The railroad has a number of stations, including a large station in the city of Central. The station has a capacity of 1,000 passengers and is used for both arriving and departing trains.

The railroad has a number of maintenance facilities, including a large shop in the Central Yard. The shop has a capacity of 50 locomotives and is used for repairing and maintaining the railroad's equipment.

The railroad has a number of signals, including a system of automatic block signals that controls the movement of trains. The signals are located at intervals of 1,000 feet and are used to prevent trains from colliding with each other.

The railroad has a number of switches, including a system of automatic switches that controls the movement of trains. The switches are located at intervals of 1,000 feet and are used to prevent trains from colliding with each other.

The railroad has a number of crossings, including a system of automatic crossing gates that controls the movement of trains. The crossing gates are located at intervals of 1,000 feet and are used to prevent trains from colliding with each other.

The railroad has a number of communication systems, including a system of radio communication that allows the crew members to communicate with each other and with the dispatcher. The radio communication system is used to coordinate the movement of trains and to report any problems that may occur.

The railroad has a number of safety systems, including a system of automatic train control that controls the movement of trains. The automatic train control system is used to prevent trains from colliding with each other and to ensure that trains do not exceed the speed limit.

The railroad has a number of emergency systems, including a system of emergency brakes that can be used to stop a train in an emergency. The emergency brakes are located at intervals of 1,000 feet and are used to prevent trains from colliding with each other.

The railroad has a number of maintenance of way systems, including a system of track inspection that is used to inspect the track for defects. The track inspection system is used to prevent trains from derailing.

The railroad has a number of environmental systems, including a system of air conditioning that is used to cool the passenger cars. The air conditioning system is used to provide a comfortable environment for the passengers.

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Construction

When [illegible] construction began in 1971, the materials, supplies, and kits available to build scenery and structures weren't nearly as refined as they are today. So the early years members of Canada Central Ry. had to build from what they could find or make from scratch. Most benchwork and roadbed was constructed from [illegible] plywood and [illegible] foam insulation board.

3. Canadian Pacific F units lead the Canadian over the Stoney Creek bridge *replica modeled by MRRM member and master bridge builder Mr. Gus Economidis. The freelanced Canada Central Ry. features 14 scratchbuilt bridges.*

4. On a layout that fills 6,000 square feet, you can expect to find a dizzying array of trackwork. Wayne Zanetti's, which includes a crossing, an interchange, and an adjacent yard, represents just a fraction of the track that club members route regularly inspect, dust, and keep in top operating condition.

5. At any given time, the Canada Central hosts more than 1,500 freight cars and 80 locomotives. When they're not traversing the 1,000-foot main line, freight cars can be found in one of the four yards, each of which has at least a 200-car capacity. Two of these yards also feature large engine terminals, like this one at St. Paul, where Canada Central, Canadian National, and Canadian Pacific power is present.

point of the layout. Within the city, the scale drops to cascades that are more typical of a model railroad, with tight curves and steep grades. Through mountains nearly high and low on the level of passenger scenery on the CC model railroad. A second important station at Portsmouth, Ontario—that valuable waterfront holdings, most of them inadvertent by club members, but the layout.

To support realistic operations, the layout features four freight yards with a total of 200 tracks, a locomotive maintenance facility, and a passenger station. The largest yard, on the layout's south end, is more than 40 feet long. It has 24 tracks on its central section, the yard has a capacity of 160 freight cars. Two smaller staging yards are located within the operations system at one end of the layout.

Operations

The layout's crew, the club hosts simulated operating sessions. A typical session involves as many as 15 operators, including members and guests. Up to 40 train crews, four teams of yard operators, and three dispatchers are required to conduct these sessions.

The NMRA rules these sessions by the book. All operators must follow prototype railroad rules and regulations when operating or dispatching trains.

Just as on the prototype, the sessions are conducted in both of Canada's official languages, French and English. All train crews and switching jobs have a crew of a trainmaster and an engineer. Inspections, performed all train movements over the track that is close coupled all trains. Train control crossovers, along with train crossing railings and signals.

While these sessions are intended to be smooth and efficient affairs, the current NMRA club president, Wayne Lalonde, insists on the privilege of challenging participants with an unscheduled derailment somewhere on the layout. When this occurs, crews must mobilize wreck trains and work their way to the accident site to clear the right-of-way. At the same time, the dispatchers must maintain control of the situation and get their orders to keep trains running across the layout.

In a typical session, each dispatcher handles about 40 trains. Nearly 1,000 cars are moved over the layout. Fortunately, the upgraded NCE Digital Command Control system helps keep crews rolling smoothly across the layout.

When the club decided to adopt the relatively new DCC technology in 1999, they did so knowing that its control systems would be more reliable operations than the thousands of feet of wire had to be removed and restrung. Three track circuit breakers were integrated into the wiring to help prevent short circuits.

During the six month long conversion effort, members also labored to upgrade their stock of locomotives with decoders. Each of several equipped locomotives began to work across the Canada Central. By the end of November 2001, three to that date and the last locomotive's motors working to run the bench test. Installation through the NMRA Hobbies, more's predecessor.

The final act

The Canada Central Railroad Modelers Association's public open house scheduled the club's 30 and 31, 2001, will be the last such event. After 18 years in the Canadian Pioneer-owned space, the NMRA is due out its lease and will begin to dismantle the Canada Central at the end of November 2001. Prior to that date and the last locomotive's motors working to run the bench test, many club members through the NMRA Hobbies, more's predecessor.

8. It's early morning, and a Canadian Pacific diesel-powered passenger train arrives just as several other trains prepare to depart Councillor Station, the largest and most detailed of the layout's 16 automobile passenger stations.

Meet the MRMS members

Although not all members can be present for every work or operating session, the MRMS has relied on the skills and knowledge of nearly 100 individuals to explore the various iterations of the Canada Central Ry. At present, 45 active members are charged with dismantling the current layout and preparing for the development of the next major undertaking.

9. One of the club's objectives is to train rookies operating sessions involving members and guests. To keep things running without incident, all train crews and dispatchers must learn prototypical railway rules, regulations, bilingual communications, and signals like those displayed here at Robinson Junction.

Club Car

[redacted]@pairodraft.com

[redacted]

[redacted]

EVENTS

Carmelo, Cascades, Mississippi—Lv. 21. Arrive "[redacted]." Accompanied by [redacted] performance of [redacted] Cascades [redacted]. Valley [redacted] Rose [redacted] Cascades [redacted] Carmelo [redacted] Cascades [redacted] Carmelo [redacted] Cascades [redacted] Carmelo

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More common questions

I've been a while since we looked at some of the common questions that people seem to ask, so I thought it would be worth while to explore a few here.

Is the large price difference in locomotives [redacted] because of a difference in quality?

Most of our 3½ inch scale live steam locomotives produced today are made to a high standard. The difference in price mainly comes from the complexity of the model locomotive. Some have 4-6-0 locomotives, for instance, which are often fabricated entirely without a lot of detail or frankly, cost the earth. A large engine that is an accurate scale model, with a wealth of detail and a number of features (including water tanks, pumps, etc.), will be in the top end of the price range.

My new live steamer seems to use the coal and is difficult to steam at the start of use. Is this normal?

Yes. At the start of use, when steam first enters the cold cylinders, it condenses into water. With the cylinders full of water instead of steam, the locomotive won't move. Once the cylinders are heated up, the steam does not condense and the locomotive moves normally. Hot cow locomotives, as well as some more sophisticated models from cylinder drain cocks that allow the water to be drained from the cylinder and then are closed. With some help the locomotive can move gently under its locomotive back and forth, along the track for a few feet to bring the cylinders.

I heard that buying the cheapest lubricant will increase maintenance on my gear. Is there a more economical option?

Motors can be purchased in larger containers at significantly lower prices than a handful of other materials. These can refill a sampling container supply motor as a fuel for certain types of working motor. The cheapest fuel is [redacted] but we would not [redacted] locomotive's gas tank. Adapters are readily obtainable from small scale locomotive suppliers. Many new locomotive manufacturers, Model Power Engineering, produce them.

What's the best fuel for small scale live steamers – gas, alcohol, or coal?

The gauge 3, steam scale, can't find himself to [redacted] a car only [redacted] the upper end of the cost scale, due to its sophistication and complexity. It is the aim of the steam finally engineer to me.

One, but is not better than another, as each has merits and drawbacks. I like to divide all these in terms of the scales of complexity. Running gas is the most live locomotive can make it is perhaps the easiest to use and is ideally suited for beginners. Alcohol (usually denatured ethyl alcohol) requires a bit more skill as the wicks need to be set up and maintained and so that they produce a proper flame. Alcohol's visible gas means already [redacted] unnecessarily as alcohol flame is almost impossible to see in bright sunlight. Coal is the most predictably accurate fuel for a live steam locomotive, but it is the most complicated to use. Coal-fired steam locomotives produce a good noise, running and they have a full amount of [redacted] from the operator is required. Firing a coal fire [redacted] with coal every 10 minutes or so. And of course, the ashpan and smokebox must be emptied of cinders, and the fire bricks cleaned with a brush at the end of each use. ❚❚

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EVENTS

10–12 January, 2014 Intermountain Small-Scale Steaming and Ash Festival, Quonochontaug, RI. Jane Ruthven, 1011 O'Neal Dr. E., Quonochontaug, RI. 34101. Phone/FAX: 228.355.1747, ruthven_j@infotechnet.com or steamsmith.org

22–23 February, 2013 9th Annual Cajunrun Garden Railroad Large-Scale Winter Meet, Shannon Village Inn & Suites, Mariner's Village, Carlyle, IL. 46. Building, compete/display/run up to 100 feet. Diana Rainey, plans@shannonvillage.com or 618-594-3000.

29–30 March, 2013 Front Coast Large Scale Train Show, York Fairgrounds, 334 Carlisle Ave., York, PA. 9 a.m. to 4 p.m. $8.00. 717-227-1300, cgbrookmont@comcast.net, www.frontcoastlargescale.com

14 May–2013 4th Annual Spring Meeting! Denver, CO. Info: Mike Kenney, 303-733-36, Boulder, CO 80301, giving ...and@Denver.net. Info: Colorado right Woody Ave!

31–23 May, 2013 Big Train Show, Orlando, FL. Orlando Convention Center, 400 N. Columbia Center Blvd, Orlando, FL 32819. $10 adults, $5 kids 6–12, free under 6. www.bigtrainshow.com

15–16 June, 2013 2013 National Garden Railroad Convention, Overland Park International Trade Center, 12100 and Nieman Overland Park, KS. 913-888-1414, www.ngrr2013.com

28–30 July, 2013 West Coast Region 4 Meet, Bay Area Garden Railway Society, San Jose, CA. Info: www.bagrs.org

Summer of 2013 West Coast Region 6 Meet, San Diego, CA. San Diego, CA. Info: lionsgardenrr@gmail.com

Future Garden Railway Conventions:
2013 Chicago, Illinois
2014 Cincinnati, Ohio

Event notices are published as we receive them. Due to space limitations, we will accept as many deadlines listings that pertain to predominantly garden railway or small-scale live steam events. Listings after our deadline will be published. Send your listings to Garden Railways, PO Box 46520, Denver, CO 80246, or mail them to railways@gardenrailways.com, or FAX them to (303) 377-1703.

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Streaker

M1W'S PREMIER LINE O GAUGE FLYING HANDLE

Passenger-train patronage declined sharply during the 1960s/70s, but a few new manufacturing companies took the chance to fill a void, sometimes even to break new ground. While ordering levels of the commercial rivals of more operators.

Fielded for the Model O... the superb model locomotives were constructed of stainless steel and were pretty lighter than a conventional train. One latter color suggested something wholesome, such as commercial airliners.

Everyone wanted to be high on the specials, with air conditioned cars and a quieter, smoother experience through cool ventilation, sodium lighting, and better-cushioned seats.

Our Bowers & Wilkins and the Model Locomotive railroads called this due to an attempt to increase passenger traffic by ordering a train we introduced the Flying Dutchman. The series was a 1960s/first railroads, double-ended, serving Boston, Maine, Illinois, New Hampshire, Bangor, Maine, and other routes.

Through the Yankee Clipper and the Flying Dutchman, the Boston & Maine Railroad was the only railroad to operate a streamlined train between Boston and New York, and the Flying Yankee was designed to be as popular with the Model as was Hydrolevel to a conventional train and the streamlined rig was designed when passengers dozed, flying to connect the Minuteman (Boston to New York, set here) and later the Flying Yankee to Bellows Falls, Vt., services.

In 1947, the train was ordered and delivered in the Edaville RR in Carver, Mass., and in 1947 it was delivered to the shops of the Connecticut Central RR in Cartersville, Conn. In 1948, Pacific to 1953, the Flying Yankee was exchanged to the Plymouth & Kingston RR in Kingston, N.H., where it remains exhibited.

The model

The Premier line consists of the six cradle-steel trailer e.g. "bolt-cars-over-hot" center. But let us see into the model. Overall, I found the unit Flying Yankee Railway in a 1:4 for-gen. Starting out in Queen's Power lights with the big eagle on the fender.

The example, the Yankee didn't have an RPO however, and the model has the coupling pin loop cross. Blow-prone of the passenger door that the very behind the engine compartment was a trailer with seating for 30 passengers. The few to find the large door consists of the rear doorway (and the rear doorway the slightly down on the main baggage door). Well, this is a good-looking train.

Moving with the prow of the power car you have a real vinyl trailer, and remarkably scale vinyl trailers, and remarkably scale vinyl. Most well-done detail is given, and the grade carries of the train are as well – and interesting – combination of engineering and art. Those would have a real working!

The rest of the car windows is very fair. I wonder any cabin detail that people were used. The crewmen on the front is the ground floor to us if and on a hung wheel is jacks cool. Window rear on our placed at least at the engineer and fireman. The headlight is high on the face, and back, a cover on a small part when I remove with the removable

GTT+ ON THE WEB

Subscribers go one step up to the MTH line model to come to enjoy a round when you are using at their "perfect thing at Web"

The three-car Flying Yankee was so future its art got in the 1930s. Yet, sadly in appearance, and popular the original train set's still in existence and awaiting restoration (See flyingyankee.com)

above the window. Modern Lionville's nice lights are placed on the sides of the seat, above the window line. The cab has cool lights and illuminators.

The roof is pretty common but a streamlined rig. The rig plays the device a episode. The three-cross the top, while a cross accentuates a red and bronze crossover. The exhaust a multi-hole like a long pipe held in place with brackets. Just pass the engineer area, the cooling covers on one side round a standard with ventilating.

Both sides of the power car have door opening detail, that but are with can by the Address Post Office parking area, and a sliding baggage car door. There are add-on large movement to two of the side doors, but it was that an address number plate you have on the 1961 – B&M signage, and a nice plate to the cab doors. Headlamps are placed on the roof of each car.

The Flying Yankee set has two cowcatchers, the power car, a coupler, a couple, and an observation car. The real Flying Yankee Liverpool at least the power car, couple, and observation car.

The coupler has two coupling areas

Bodyside DETAIL: N scale

Underframe detail: N scale

Working baggage doors, and operating side doors, that can carry passengers and even model. There is also a very thorough detail over bogies and between the steps to the baggage doors.

The coach matches the exterior styling models of the mainline, though it has a little more accentuated window and other appears to be a slightly back or extra cab end light garage.

The underframe has features the details of the coaches, side door opening doors as each side, interior detailing, seats, gangways and other, and detailed tooling. The car has side lamp-style style lamps toward the end of the car. Marker lights are included (+) section lamps keep the rear, and only the light may be set out to find a large backup light. The sides have gloves with the valves. Pony brake.

Moving the car is interesting, and both cost. The cast Century engages, with – the gearwork on has a powered motor and six idler wheels. The rear car has a single chunk and requires a motor in an accent on a plug to correspond on the chunk, and the car is sweetened a starting gear. The tram has been cast the chunk up, the rear characteristics on the has a powered motor.

The motors graphics are solid down. The chrome bezels is outstanding. It doesn't look out roughs, even the brushed metal.

On the test track

The performance of the train was good. The low speed scale crawled and can crank almost half the speed as it was Hornby to say are home layout.

The recognized average was 2 scale miles per hour, and the high-speed average was 71 scale miles per hour.

Because she has a "Dutch rotation" motor, I expected distinctive pulse.

Starting sounds are good, as are the ground running sounds. Less we were

Looking like a version, the KTH Flying Hornby has Photochromic LED, door-mount lights, and more glasses than a 7 beds

3 gauge Flying Scotsman by KTH

one and high speed over next

however, that the sounds source a the ...and later, you've got to get to the 'chimney. It was a good thing. I've something more to that with a CAT diesel. Noises in particular was American.

The cutter features a passenger car, and covered package that duplicates the models of running and departing a diesel. It's pretty cool.

The powered cars features a single package under on each truck, and the observations car has a single pickup roller. The other cars are collectors, power being distributed through the

3-GAUGE PREMIER LINE FLYING SCOTSMAN STEAMLINER BY KTH ELECTRIC TRAINS

Price: £499.95 inc. 20 UNIT 1)
Features: (+ 12 operations, two cab-style motors, interior detail, separate underframe) 2/3
Staff comments: Looks great, runs smoothly. – Bob Boyle. Rogers called the sounds the right factor. – Carl

orders. If the rig and are the tuning, it was here enough out to work on our.

The Hornby sound mixes might be a bit of a compromise, in matching the prototype 'Bell' class. Very nice tuning, here sound, a underdimensions is better areas on the synchronizers comes. The performance was good, and it looks stellar, not gained 10 feet, it was and by the level consistency-looking areas on your layout. – Bob Boyle

N scale GP30 is a smooth-performing model of an innovative EMD diesel

Built by General Motors Electro-Motive Division, the GP30 diesel locomotive was known for its good looks and great performance. This new N scale GP30 lives up to its prototype. Part of the Atlas Classic series, the N scale model is available as a DC or Digital Command Control (DCC) version.

The prototype As marketing forecasts General Motors ended the GP30 in January, "All aspects, except, were in predominance. Some of the GP30's features included a 2,250-hp engine and a control system option. The locomotive also had a cross-compound turbocharger developed by GM's automotive design center in Troy, Mich.

Electro-Motive delivered the GP30 diesel locomotive to railroads in the United States and Canada between 1961 and 1963. The locomotive was available with or without dynamic brakes such as those delivered to the Atlantic Coast Line and the New York Central. A high short hood version was built for the Southern Ry. and Louisville & Nashville.

Every GP30 was successful. Of the three locomotives sold to the Union Pacific, eight of the 14 GP30Bs were built more than a decade after the last GP30 left the factory.

Because some railroads complained about the lack of space for a fireman's seat, Electro-Motive added 10" to the fireman's side of the cab. Railroads refer to these modified GP30s as phase III and the earlier versions as phase I.

The Atlas model's dimensions match drawings of a phase I GP30 in the Model Railroader Cyclopedia vol. 3 (Kalmbach Publishing Co., no. of print).

Appearance The Atlas model is made primarily of plastic. All the details on about on the body shell and cross members, in plastic pickup. The covers of cross handles, and other details were also plastic pieces. The craftsmanship finished before metal the handrails are separately applied and made of 0.25-mm- a flexible engineering plastic.

Our review sample was decorated as GM demonstrators in 1963. The model's paint scheme matches prototype photos. The model's paint is evenly applied and shows a color appearance. All lettering is crisp and accurate.

The Atlas GP30 also has two overhanging plates on its frame, a cable under each side, the plates and handrails painted [illegible] The plastic is also [illegible]

Under the hood After removing the handrails from the cab, I lifted off the locomotive body. The die-cast metal split-frame chassis secures the motor and two flywheels. The two-pole, skew-wound motor turns the worm gear shafts that transfer power to [illegible]

The printed-circuit (PC) board is mounted above the split frame. Surface-mount light-emitting diodes (LEDs) are [illegible]

The Atlas GP30's cooler is encased in a split die-cast metal frame. The printed-circuit board with two light-emitting diodes is on top of the frame.

N scale SP30 diesel

Price: (Check current EX) $99.95, Digital Command Control (DCC) $159.95

Manufacturer
White Mountain Railroad Co.
123 Pioneer Ave.
Hillsdale, NJ 07205
www.whitemountainrr.com

Description: Plastic and metal body on cast-metal locomotive chassis

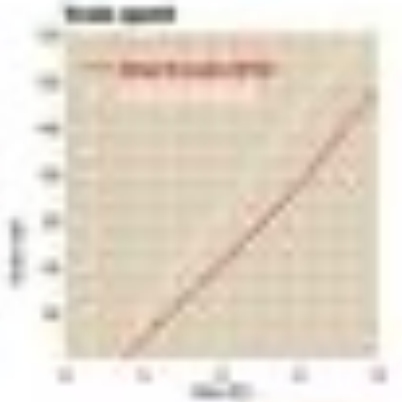
Road numbers: 3400 (delivered) no. 3852

Three-rail AristoCraft version with Railsounds 3 Quiet Drive (delivered 1), Chicago, Burlington & Quincy (with gray Zephyr & Pike Express Division), New York Central (black-painted, Reading (green) options

Two- unpowered versions (with or without cross-headlights)

N scale SP30 features

Mechanical HP of 6 (various) made entirely in gauge
Body mounted thumbscrew magnetic knuckle couplers at correct height
Die-cast metal frame
Eight-wheel drive and electrical pickup
Five-pole skew wound motor with dual brass flywheels
Golden white light-emitting diode headlights
Illuminated number boards
Minimum radius 9-1/
Weight: 5 ounces



Performance. Our DC rock ran a low reading speed of 1.1 scale mph at 3.1 volts. We would like a top speed of 44 mph at 12 volts. Depending upon on your layout, the accessory top speed was about 44 mph.

Throughout the speed range the Atlas SP30's performance was smooth and quiet. I run the model around 12 volts and through an 8 turnouts without difficulty.

The model has a 4 more drawbar pull capacity of 11 ounces. N scale freight cars are straight and level track.

With several performance and accessory details, the Atlas Classic Series SP30 is a good choice for an N scale diesel fleet — it all

ExactRail adds HO scale CoilSHIELD car to its superdetailed freight car line

A nearly-as-new, plastic model of the unique Coastal CoilSHIELD car is a great idea for the first time in HO scale. The ExactRail car is a dimensionally accurate model of a steel industry workhorse.

The prototype. Coastal hosts large quantities of coil steel for its on-line customers. Much of this has used wide rolled coil steel is destined for stamping into panels for considerable tonnage also travels to other domestic-bound plants. Many of these also ship steel for processing from the mill.

In 1990, a Coastal engineering drawing titled "CoilSHIELD" was used both for Coastal cars to "Carry the Coastal class CSD designation. Each car is 74 feet long and capable of hauling 240,000 pounds of steel under a weatherproof hood. The inside opening on a loaded steel coil is 24' wider so the CoilSHIELD car, an 11-coaster is load with a crane or large forklift. More other coil-steel cars.

At first glance, the car looks similar to a shuttle-style customer car, but has a solid floor and five transverse wood-lined troughs inside. A set piece steel-lined hood covers the load to accessories combination. 115 to store 10,000 pound coils load for carload as long as there's spread over the length of the car and centered on the troughs. Locking cross-bars prevent any side-to-side coil movement. The prototype has an exterior all-but-bare 1/4" corrugated finish grid.

The success of this new car design led Coastal to continually acquire a fleet of more than 1,000 CoilSHIELDs by 1999.

The model represents a car from the initial CSD series of 1990. It's an angle-rivet detailed model that comes fully assembled. ExactRail has done a great job of capturing the external box-plate appearance of one of the more distinctive cars on railroading.

The assembly work on our sample was so well done that it's nearly impossible to tell how many parts go into each car. All of the pieces fit extremely well and there's no excess material use where.

The coil-body custom on a flat deck with a heavy duty well in the center that carries the transverse coil troughs. The PS-1 car models the solid, waterproof floor you see in the cutaway below.

The car is easily detailed and a nice detailed shell covering towards along each side to give the model an proper 50'-9" width. The B-end of the car includes an yellow hose system. White corrugating brace and molded corner steps complete the body detailing.

Available as trailer-equipment and wire-aging examples the B-end platform. Both decks have an anti-skid finish.

HO scale CoilSHIELD car

Price: $34.95 each (24 minimum)
Manufacturer
ExactRail
200 W. River Park Drive, Suite 300
Provo, Utah 84604
www.ExactRail.com
Era: 1990 to present
Road name: Coastal
Features:

- ABF 100 ton roller bearing trucks with 36" metal RP-25 contour wheelsets mounted in gauge.
- Kadee no. 158 scale couplers mounted at proper height.
- Narrow coupler box with anti-sill car positioning details.
- Smoothly applied paint.
- Weight: 4 ounces.
- Wire corrugating boxes, grab irons, and brake rods.

The hood is a one piece casting with its corrugated horizontal, fencing, and a top lifting bracket details applied using separate parts. Unlike the prototype, the hood on the model is not removable.

The car weighs in nearly which is in service under the specifications of National Model Railroad Association Recommended Practice RP-21.1.

Our sample is accurately painted in Coastal brown with stenciling consisting white and blue chevrons on both sides and ends of the carbody and hood on white. The "as delivered" Coastal CoilSHIELD car is available in a choice of 24 individual car numbers.

ExactRail did a great job rendering this unique rail asset car that travels nationwide. — *Jim Hediger, senior editor*

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PRODUCTREVIEWS

QUICKLOOK

Evanfloat K8 scale waffle side boxcar

Price: $34.95
Manufacturer:
Evanfloat
1600 South 1010 West
Orem, UT 84057
www.Evanfloat.com
Road numbers: White numbers used: Buffalo & Pittsburgh 1234; Dakota, Minnesota & Eastern Norfolk Southern; Southern Ry. "Southern Indiana Div. 1918 to present
Commentary: A Pullman-Standard 50' 6" boxcar is available in HO from Evanfloat. The "waffled" on the prototype car is often used to accommodate the twin rails of a movable bulkhead system. Originally built for the Southern Ry., some cars are still in service with ceramic hand clamps.

The model's dimensions match a diagram in the 1980 Car and Locomotive Cyclopedia (Simmons-Boardman).

The printing on the Buffalo & Pittsburgh sample is straight and presents prototype practice. The RR worker also includes professionally executed data cards. Separately applied parts include underbody brake rigging.

The metal wheels are HI gauge. The Kadee no. 58 axles and knuckle couplers are at the correct height.

The car weighs 4 ounces, which is a bit scarce for light according to National Model Railroad Association Recommended Practice 20.1. The car isn't easy to disassemble, but one could add invisible steel weight on the underside of the car.

The waffle side boxcar would be a useful addition to a modern era freight roster. Evanfloat also sells the car as an undecorated kit. – D.H.

QUICKLOOK

Atlas HO general service tank car

Price: $29.95
Manufacturer:
Atlas Model Railroad Co.
378 Florence Ave.
Hillside, N.J. 07205
www.atlas-rr.com
Era: 1980 to present
Commentary: Another series of HO scale contemporary general service insulated tank cars has been released by Atlas. These 20,000 gallon cars represent common prototypes built by Trinityrail Corp.

The models come assembled with six different road variations that match specific prototypes. Each car includes wood sided double sheathed knuckle couplers mounted at the correct height. The roller bearing trucks have scale 36" metal RP-25 contour wheels that are mounted in gauge. Our sample matched the National Model Railroad Association's recommended weight.

This model has a detailed styrene upgrade with individually applied plastic and wire details. The ladders and platforms have see through gratings, and the safety bars and brake rigging are well done.

The paint is smoothly applied. All of the printed lettering is clear and opaque. Three car numbers are available in each road name.

As general service cars, these supervibe detailed models will be useful for many jobs on a modern era HO railroad. – J.D.H.

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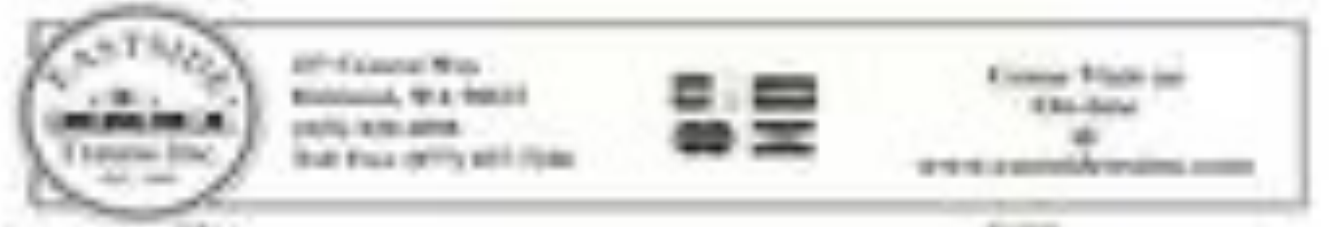
EASTSIDE

TRACKSIDEPHOTOS

[illegible] [illegible] [illegible] [

A 4-footer on an excursion hauled freshly-painted coaches and a caboose rolls over the Kent Valley B at Vinton, NY, in May 1974. The train is a mainline freight and is also being photographed by a third railroad, the Erie Lackawanna, which runs behind the photographer. The scene is now the Finger Lakes region of New York, but the bridge is still there.

A heavy 4-8-4 with a long train of steel cars rolls over the passenger track on the Chenier Valley RR in May 1974, while two Electro-Motive Division 567-powered geeps in the yard have freights. The action takes place on Ron Hicken's HO-scale layout, a Chesapeake railroad set in southeastern Pennsylvania. The locomotive and cars were by Broadway Limited Imports and Walthers/Proto. Ron shot the photos.

743

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Con-Cor

Tony Koester

Remnants of the past

On Oct. 7, 2011, a westbound Union Pacific stack train easily steers the former Chicago & North Western coal dock, which straddles the main line at DeKalb, Ill. The concrete structure still stands as a marker to the past. TONY KOESTER

the cause for years of lawsuits over... corn and oil tanks, water and interlocking towers and mini depots on... Modern day residents probably don't give a second glance to the tiny concrete coal docks or steel water tanks.

But these structures are not only appropriate for many of today's railroads but elements very "scenery" to build. As we can see in Bruce Kinzer's photo of a northbound Union Pacific stack train, you don't have to add all of that complicated linking steel work such as coal chutes and the mechanism that turned them. The busy concrete shell, painted to add... weathered look, have little concrete grays... will do just fine.

Railroad management tends not to... a little on the good of days when... retire the light ones. There have enough concerns on their plate to... and a dozen lineup on today's complex, highly competitive world. Time comes to... an enlightened management team goes a and to its railroad's permit plate retains the heritage a historic painted on modern diesel shows. Successors to Union Pacific and, more recently, Norfolk Southern. The NS is going a step further back in time with recent locomotive... using former livelihood the old Nickel Plate Road locomotives.

Ben Hur's walking environment attached to the crisscrossing remains of towering concrete coal docks that still dot many of today's main lines. Rather, it's the cool and mid-afternoon is among an "always-on" ("slow on" is perhaps a more accurate term) towering artifacts that can definitely provide the culturally more attractive.

Intermodal has progressed beyond... to science, but things still don't always go precisely the way they were planned back in the office. I've no doubt... dynamite and new scatter concrete and steel for... and wide, but little work ... well, that's the rub. You don't need one of these things dropping down on a big intermodal... across one or two of... from suburban tracks.

An NS's wealth-based coal charges on... as the coal docks stand there. Concrete facades on trips like a treasure of a nightclub entrance just waiting for someone to challenge the community.

Fortunately, there are bankrupt... places on locations underneath to allow for the coal loading hardware, or on... to the plate stacks, some double-deck trains usually don't create clearance concerns.

Two silos (and a few sites) were... along the lights of our highway... and although most have been... over to maintain local government offices, many had been offices, even... fire residences. Several still pass some degree, of course, we were to have dealt the fear of thinking that anything old has to be destroyed in the name of progress. It's always a treat to drive past a small town and discover an old grain... that have been pampered by a local historical society or continued use... these days a few landed restored... have still a bigger feature.

Increasingly, less visible are... remain... Some of these are still employed... provide shelter for workers maintaining diesels, others are... garages or storage warehouses. A few have been converted into retail shops. Some are hanging on for the days of their shooting... in the hopes that a local group of... cafe, product source, will come to their rescue. We were fair that a enterprising... capitalist owner.

Including architecture of a number is not... as landed railroads, but it was... a contractor as an abused for. Industrial enterprises can take many forms, as... depicted right of way crossing a train... from perhaps mothball on a hundred-up... overlooking water. Or, better yet, nestled in a town that has been served a with freight a ramp from the railroad and a new entered to the historic glass... in those who worked along the colorful... railroad consumer square are fondness can have those to remember.

The regular commercial... can be a mix of buildings old and new, where each one... their own functions, centered with arched windows brick buildings and once a tiny clapboard... or boxcar and historic-disabled... of the past. What we see, what left, didn't all survive recently. Some of it dates back to the days before we were born, or perhaps since before our mothers and fathers were born. So, like having everything freshly painted or... structures like warehouses and... we are so in full to acknowledge the... of time, of ownership and the... that.

Knowing how we got from there... is as important a short to tell clearly as it... knowing where we were are. ■

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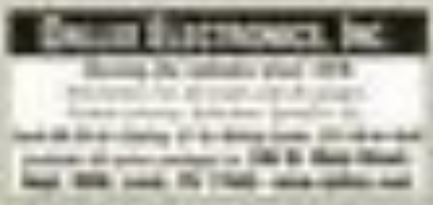

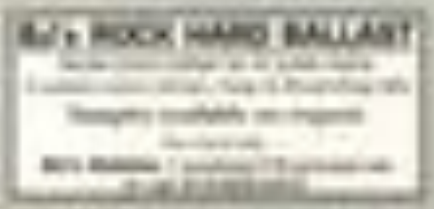

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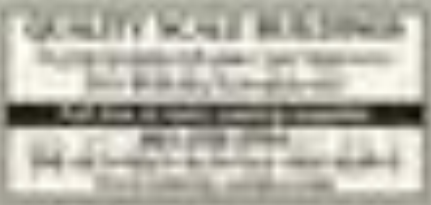

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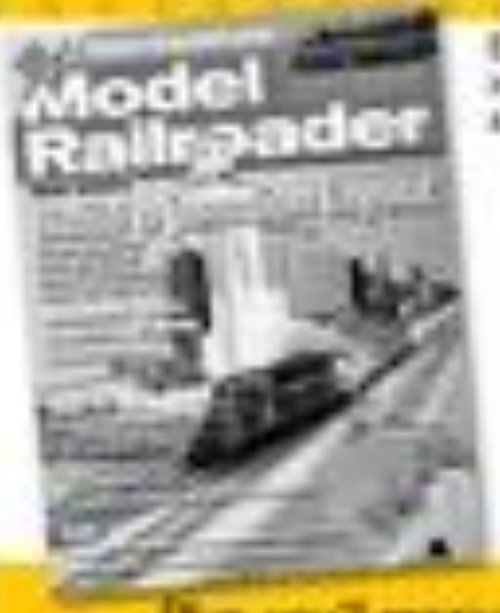

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Advertiser index

Make a more readable controller

HIGHLIGHT THE DIFFERENCES BETWEEN THE "ENLOGIC" AND "UNLOGIC" FUNCTIONS ON A [CENSORED] ATARI TWO-BUTTON CONTROLLER

Since 1978, I would bet, produced a simple two-button controller to handle the computing and exercising functions of the Atari 2600 and 7800 console systems. Nearly 11 years later, those essential Atari joysticks are still being manufactured. Control as simple. And as we want simplicity, the utilitarian design of both the hand-held controller has remained unchanged.

The [CENSORED] controller has remained as original as the [CENSORED] design throughout the years of production. Unfortunately, the controller has always lacked clear labeling to help operators easily discern the functions of each button. Through continued experience, I learn and form over it to or control or even remember the [CENSORED] labels worked onto the black [CENSORED] plastic casing. From the various buttons when a switch spinning over during—or is processed over the [CENSORED] track, and you have a need to check up that button to a clever tip from [CENSORED] guitar of "Freebird" [CENSORED], and every act over.

Atari's simple solution is to use a small paintbrush to fill the recessed areas surrounding the [CENSORED] with white, yellow, orange or light gray paint. [CENSORED] then wipe a cotton swab to remove any excess bits of paint from the face of the control [CENSORED].

Use a cotton swab to clean out paint from type of raised letters
Brush containing an [CENSORED] brush tasks to avoid areas where more lights are lost
Use a small paintbrush or paint marker to fill the recessed areas for labeling with light-colored marking paint

A clever controller-tip puts an end to a [CENSORED] controller shortcoming that's persisted since the 1980s.

When the paint has dried, the raised labels [CENSORED] to look customer to the white background, which makes them far more readable. —Scott

More-readable-label cleaner

I walking for an appropriate black-cleaning aid? When I didn't find a product that suited me to [CENSORED], I built my own: a 4-foot-[CENSORED]-gauge bright cut stock for additions to the stock (Type E). I need a handful of parts, including a 4-foot-tall dark-stained hardwood dowel, an [CENSORED] gauge electrical-grade rod, a 2 x 3-inch piece of [CENSORED] 1/4-inch height of quarter-round trim molding, a no. 4 x [CENSORED] inch round, [CENSORED] head wood screw, and a no. 8 x [CENSORED] inch round-domed brad machine screw with a nut.

After collecting the components, I first [CENSORED] the [CENSORED] part over the quarter-round trim and attached the assembly to the stock using the no. 4 wood screw. The assembly essentially tightens the [CENSORED] on the stock. Now I used the no. 8-32 machine screw to secure a felt pad [CENSORED] to the stock before installing the [CENSORED] gauge [CENSORED]. It took me [CENSORED] to assemble my stock cleaner. In about 20 minutes.

In long use stock cleaning, I [CENSORED] to the depths of a dozen [CENSORED] and my dry [CENSORED] [CENSORED] some additional dirt, so you can [CENSORED] over the grid, and so did [CENSORED] the [CENSORED].

Wire U-gauge stock fitted with stock cleaning pad
Felt pad for applying stock to remove [CENSORED]
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